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ABSTRACT

A distance education taskforce was convened by the Colorado Commission on Higher Education (CCHE) in the spring of 2000 and was charged to address the potential for increased use of distance education to meet the needs of populations throughout the state. It was specifically charged to address the conceptions of a common platform and common core of courses. Thirty-three Colorado higher education representatives participated, drawn broadly from faculty and administrative positions in academic affairs, finance, and technology. The taskforce formed sub-taskforces in six areas: market study, academic, common platform, common course catalog, organization, and finance. Each sub-taskforce prepared a written report outlining a number of recommendations and funding implications. In total, 32 recommendations were prepared spanning six areas of concern. This report compiles the recommendations and adds CCHE's position and recommendation for proposed action with regard to each. (EV)

ED 449 711

Colorado Commission on Higher Education (CCHE)
November 2, 2000
Agenda Item VII, D
Attachment

[Distance Education Taskforce Report]

SUMMARY AND RECOMMENDATIONS

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SUMMARY AND RECOMMENDATIONS

Background

A distance education taskforce was convened by CCHE in the spring of 2000, charged to address the potential for increased use of distance education to meet the needs of populations throughout the state. It was specifically charged to address the conceptions of a common platform and common core of courses. Thirty-three Colorado higher education representatives participated, drawn broadly from faculty and administrative positions in academic affairs, finance, and technology. The taskforce formed sub-taskforces in six areas: market study, academic, common platform, common course catalog, organization and finance. Each sub-taskforce prepared a written report outlining a number of recommendations and funding implications. In total, 32 recommendations were prepared spanning six areas of concern. Staff compiled these recommendations and added CCHE's position and recommendation for proposed action with regard to each.

Guiding Principles

The taskforces agreed that recommendations would be consistent with four guiding principles:

1. Growth and coordination of distance education programs should be based on incentives that encourage collaboration, cooperation, and build synergistically on existing institutional strengths.
2. An institution's role and mission, academic standards, and commitment program assessment are independent of mode of instructional delivery.
3. Information technology competency is desired of all faculty and students in recognition of its cultural and economic importance.
4. Distance education transcends location.

Key Recommendations

The following table summarizes each of the 32 recommendations – including CCHE's position statement and proposal for action on each. CCHE staff generally agree with the recommendations as presented. However, there are implementation issues with which staff disagree.

Distance Education Coordinating Council

The taskforce recommendation that a formal body be established to carry out and implement the various recommendations is one such area. Termed the Distance Education Coordinating Council (DECC), it would have as its mission: to increase awareness, expand access, assure

quality, and improve cost-effectiveness of certificate and degree programs offered via distance education by Colorado public institutions of higher education through statewide coordination of resources and services to competitively serve the needs of Colorado's citizens and economy. Both staff and the taskforce agree the DECC should be comprised of representatives from each higher education system, be supported with working taskforces in each area of concern, and advise and consult with existing CCHE councils. However, staff does not agree with the taskforce recommendation that the coordinating council needs a separate, independent staff to coordinate the following functions: implementation of a common course catalog and platform, inter-institutional coordination of credit transfer and tuition payments, student advocacy, market research, administration of program development grants, quality assurance and standards, and data collection and reporting.

It was recommended that the CCHE Commission should pass a policy resolution, jointly developed with the institutions and supported by the CEOs, formally establishing the DECC, including membership criteria, charter, staffing, and funding guidelines. CCHE concurs with this recommendation in part. Staff believes employees of the coordinating entity proposed would serve to many masters with competing interests to result in effective implementation of the proposed recommendations. Staff believes implementation staff should be employed by CCHE directly.

Central Program Development Fund

A second major recommendation, as presented by the Academic Taskforce, proposes a centralized funding source similar to the successful *CCHE Programs of Excellence* to maximize the potential for the development of new online courses and programs. The purpose would be to provide an incentive to develop specific programs that serve priority economic development goals, and to maximize the potential for statewide access to higher education for all Colorado residents through an online delivery mode. CCHE strongly endorses this recommendation. However, the Commission should note that the Financial Taskforce recommended against this strategy.

This Central Development Fund is seen as the mechanism to achieve a number of outcomes in distance education of interest to CCHE and the institutions. These outcomes are best summarized by a set of program selection criteria for the use of these funds developed by the Organizational Taskforce, namely, that any funded proposal:

1. Constitutes an entire degree, certificate, or general education program
2. Provides for faculty training and support
3. Includes quality assurance and control mechanisms
4. Presents reasonable and definite milestones, timelines, and deliverables
5. Complies with adopted technical standards and systems
6. Intellectual property goes to institution in accordance with its own policy
7. Fills a gap in existing program offerings from a statewide perspective
8. Eliminates or consolidates program duplication
9. Addresses workforce needs of Colorado
10. Addresses a sizeable student market
11. Broadens access to rural populations
12. Has multi-institutional participation (course development and/or delivery)

13. Explores cost-effective uses of technology
14. Explores innovative and appropriate uses of technology
15. Showcases competitive academic competency to global markets
16. Enhances on-campus technology-enhanced delivery of program
17. Involves 2-year to 4-year program articulation

State Portal Project

These key recommendations – and the many they support –entail substantial financial commitment. CCHE management has determined the best approach to initially meet these funding needs is through the State Portal Project. This approach is welcomed by the portal project because of the relevance and potential of distance education as a valuable and useful online service to Colorado citizens.

Planned Initiatives Short Term

Several recommendations can be implemented in the short run, specifically:

- The establishment of a statewide distance education course catalog. This would be implemented through joint funding from the institutions and CCHE.
- The issuance of several requests for proposal (RFPs) for specific technology elements of a common platform for distance education, including, Web authoring tools, Course Management Systems and Turn-Key Services. The taskforce was unanimous in its strong position that these awards be permissive.
- The establishment of the DECC and its staffing with a 1.0 FTE position jointly funded by the institutions, if a central development fund is established.
- Continued data tracking providing a statistical profile of distance education activity in Colorado.

Common Platform

A requirement of this report was to address the issue of a *common platform*. This issue was addressed thoroughly by the Common Platform Taskforce. The principal finding calls for collaboration among all public higher education institutions in issuing RFPs and awarding contracts for a variety of technologies and services comprising distance education platforms. The taskforce is unequivocal in recommending that purchase of these services be elective due to two compelling concerns: first, a substantial existing "legacy" commitment exists to a broad variety of platforms and second, the industry is in great flux, requiring flexibility in contractual arrangements as companies' positions in the marketplace wax and wane. In order to work toward greater common use of a single platform, however, the development fund may, as appropriate, be implemented by the Commission to require, as a term and condition of funding, the use of a specific and standard platform technology.

Common Core

Another requirement of this report was to address the issue of developing a *common core* – sharing the costs in the development of distance education content among many institutions, each of which then would use this content in delivering their version of a given course or program. This issue was first addressed by clarifying terminology and the taskforce recommended dropping the use of this term entirely because it is easily confused with the same term meaning, in the context of general education, the general education curriculum. The *core* concept in this context has more to do with *how we share development costs* than with the specific content involved. Therefore, the intent of this requirement is met, principally, through the central development fund recommendation, which provides both an incentive and a means for sharing course development costs.

Intellectual Property

Intellectual property policy was addressed in several recommendations. The point is that adequate IP policy should be in place at each institution which provides for fair participation among all parties, including faculty, in IP revenue. Staff strongly endorses these recommendations and proposes the Commission adopt a motion to set a date certain by which all institutions shall have such a policy in place and filed with the Commission.

CCHE DISTANCE EDUCATION TASKFORCE RECOMMENDATION SUMMARY				
Rec. No.	**Page No.**	**Taskforce Recommendation Summary**	**CCHE Position**	**Proposed Action**
MARKET STUDY TASKFORCE RECOMMENDATION				
M.1	9	The CCHE should assign a high priority to the conduct of a professional market study of the Colorado distance learning market. A comprehensive analysis of the statewide market will provide the foundation for CCHE's distance education initiative, should guide program investments, and should provide direction on needed "marketing" efforts by the state and institutions. The statewide study should take precedence, in terms of timing and resources, over efforts to analyze Colorado's potential to compete nationally and globally in the distance learning business. Finally, the proposed Distance Education Coordinating Council (DECC) [see Recommendation O.1] should develop mechanisms for ongoing analyses of the	Partially agree. Agree with the task, but not the funding strategy. See Proposed Action.	CCHE's position is that the institutions, acting collectively, should finance this market study. Market intelligence is a central responsibility of each institution. A cooperative effort resolves the issue of each institution spending resources essentially re-

		changing marketplace within Colorado, nationally and internationally.		doing research that benefits all.
ACADEMIC TASKFORCE RECOMMENDATIONS				
A.1	12	Endorse the use of the *Guiding Principles for Distance Learning in a Learning Society* , first developed by the *American Council on Education* in 1996.	Agree. These sound, national consensus, professional guidelines should be adopted by CCHE and the institutions. They should be amended when the forthcoming national accreditation guidelines for distance education are released.	CCHE Commission should adopt a policy statement.
A.2	14	*Common core.* To avoid confusion with existing terms used in Colorado higher education to refer to the general education curriculum, the committee recommends that the existing pool of online courses that will form the base of the coordinated online course initiative be referred to as the *Online Course Data Base.*	Agree in part. We should avoid the use of the term *common core* because it already has a specific meaning in reference to the general education curriculum. We would distinguish, however, between *institutional courses* , the totality of distance education courses developed independently by institutions (estimated in 1999 to be approximately 1,700), with *coordinated courses*, distance education courses jointly developed	No action needed.

			among a set of institutions.	
A.3	15	*Content development:* 1) Faculty should be encouraged to bring forward creative ideas for new online courses that address not only content; but also creative ways to use the technology associated with online course delivery. 2) New online courses should address the needs of the specific communities each public colleges serves. The academic marketplace will be one of the best ways to determine which courses should be offered online. 3) The quality of new online courses developed by public colleges should not be compromised in order to respond to unsubstantiated market forces. 4) Institutions should be free to develop and offer online courses that are not included in the "online course data base."	1) Agree. Faculty and institutional initiative in distance education should be supported. 2) Agree. Market relevance is a responsibility in any distance education program development, whether through decentralized or centralized funding. 3) Agree. See A.1. 4) Agree; see note 1.	No action needed.

A.4	15	*Intellectual property policy.* Systems that have intellectual property (IP) policies should continue to develop online programs within the parameters of those policies. As soon as possible, the CCHE should develop an IP policy addressing the development of online courses/programs for use by those institutions that do not have an IP policy.	Agree in part. CCHE should establish a deadline for institutions to evelop IP policies. Policies should directly address copyright of distance education material. or programs developed with centralized funding, an appropriate IP revenue sharing arrangement will be incorporated in the terms and conditions of the development contract.	CCHE Commission should adopt a motion requiring institutions to adopt and file with CCHE an IP policy that covers copyright issues by a date certain.
A.5	15	*Course transferability.* For each course listed in the statewide online catalogue, provide direction on the transferability of that course to other Colorado public colleges. A taskforce to work on this project should include curriculum officers, transfer officials and registrars. In addition existing Transfer Policy should be reviewed and modified to accommodate the growing tendency of students to use the online mode to build a class schedule which thereby increases course transfer traffic. The ability of students to electronically reach out for a course while remaining at their home institution suggests a new way of viewing course transfer. This new reality will also require that admission policies be modified to accommodate this academic phenomenon.	Agree. Staff views this as extremely important way to facilitate degree completion by students, enabling students to enroll for needed courses online from a broad choice of state institution when the needed course is not available or convenient through their home institution.	-DECC, with State Portal funding, should implement a transferability database as a component of the State distance education portal. -Academic Council should reevaluate transferability and admissions policy in light of distance education trends.

A.6	15	*Coordination*. Organize a distance education consortium with support and guidance from the CCHE to develop Colorado's distance education initiative. The consortium should have standing councils which deal with Academic , Common Course Catalogue , Technology Support Systems , Finances and Market Strategies. In its early stages, the consortium would leverage the experience, momentum and common understandings already achieved by the six working CCHE Distance Education Taskforces which produced this report.	Agree. Note many of the other recommendations (e.g., M.1, A.5, A.6, A.12, P.1 – P.6, C.1, O.1, F.4) either reference or reiterate this particular recommendation.	See O.1.
		Referring only to the academic responsibilities of a consortium, a council could be established which includes academic administrators, practicing online faculty members, extended studies officers and instructional designers who would apply established CCHE academic policies to the review and approval of new online courses/programs. Specific academic issues that emerged from the coordinated online initiative would be referred to existing administrative units or committees for resolution and/or policy recommendation.	Disagree. Staff does not recommend another degree approval mechanism. Staff believes the existing degree approval mechanisms at the institutions and at CCHE are both appropriate and sufficient review processes for the purposes of degree approval. That is, the degree approval processes applied to distant and on-campus programs should be reviewed under uniform academic processes. This recommendation is consistent with the second guiding	See A.10.

			second guiding principle the taskforce adopted.	
A.7	16	*Academic support services.* The development of new online courses should include appropriate academic support services to ensure student persistence and retention in online courses.	Agree. Costs of academic support services should be factored into cost models of distance education course delivery.	-The Commission should pass a motion tasking the CIO and CFO Councils to work jointly to develop adequate cost models and cost accounting mechanisms for distance education.
A.8	16	*Tuition rates.* If a common online tuition rate is established, that rate should not place any students, who are currently able to take online courses from public institutions, at an economic disadvantage. Tuition rates should be established with the primary focus on Colorado residents and secondarily on the out-of-state academic marketplace.	Partially agree. A common online tuition rate should not be established under the principle that different tuition rates reflect role and mission and other institutional differences. However, staff believes that differential rate within an institution is not acceptable. See F.1.	The Commission should set a policy that online tuition should be no higher than regular tuition and asking that the governing boards revise their practices to come into compliance with this policy.
A.9	16	*Needs assessment.* Conduct either a statewide or selectively focused "needs assessment" that tests the potential for: online course demand in content areas that respond to workforce development, regional and community educational needs and appropriate technology required for online courses. Potential demand should also measured against the increasing number of	Agree.	See M.1.

		measured against the increasing number of providers.		
A.10	16	*Program development criteria. Criteria should be considered when new courses are being developed, including: program/course demand, similar or duplicate courses, an assessment process, and highly evolved interactive design.*	Agree. These criteria apply equally whether the course is developed through an institution's own resources or through a centralized development fund. See Organizational Taskforce chapter for a detailed list of candidate criteria.	DECC should establish program selection criteria for centralized development funding.
A.11	16	*Program development incentives and support.* For faculty members who are encouraged to develop online program/courses, incentive options should include reassigned time for course development, extensive and *continuing* faculty development, monetary incentives, and assistance from instructional designers. In cases when faculty develop unique courseware, software or any marketable online enhancement, there should be opportunities for faculty to share revenues.	Agree. Incentives should be commensurate with additional workload. Support should be provided appropriate to the task of online course development. IP policy should be in accordance with A.4.	-Initially, DECC should fund incentives and support as component of central development fund grants. -CIOs should develop a comprehensive technology budget model sufficient to meet these and similar technology needs.
A.12	17	*Centralized development funding.* A centralized funding source similar to the successful *CCHE Programs of Excellence* is recommended to maximize the potential for the development of new online courses and programs within Colorado public higher education, to provide an incentive to develop specific programs that serve	Agree. Note this recommendation is opposed by F.4. CCHE should establish a means to maintain this fund through a suitable mechanism (student	-Centralized funding should be capitalized through State Portal project and administered through DECC

		priority economic development goals, and to maximize the potential for statewide access to higher education for all Colorado residents through an online delivery mode.	fee, differential tuition, or differential state FTE support).	-CCHE Commission should establish a policy on continuation funding.
COMMON PLATFORM TASKFORCE RECOMMENDATIONS				
P.1	25	*Course development tools:* a) Establish a permissive state purchasing price agreement with authoring software vendors. b) Provide a financial incentive in the form of a subsidy by funding a significant fraction of the cost of the software purchased through the price agreement. c) Provide necessary funding for institutional support staff, create statewide training programs and user forums for the selected authoring tools, sponsor a semiannual Web Authoring user group conference, d) Create an incentive process for the development and operation of an online repository for digital content, modules, graphic and visual elements, and audio components.	Agree.	-DECC should be tasked to develop a permissive State RFP for course development tools. -The financial incentive to use the State award should be implemented as a condition of funding from the central development pool.
P.2	26	*Course Management Systems (CMS):* a) A single CMS for all public institutions should not be mandated in view of the diversity of higher education in Colorado and the subsequent variety in administrative	Agree.	-DECC should be tasked to develop a permissive State RFP for CMSs. -DECC should

		the subsequent variety in administrative support systems b) An RFP should be issued to solicit price bids for the major categories of CMS products and services to lower the ceiling price any public institution would have to pay and to exert some influence on features and services these products should offer. c) An inter-institutional taskforce should be established to evaluate current national initiatives to develop technical standards for producing instructional materials ("objects") that could be used in any standards-compliant CMS. d) Proactive and cooperative steps should be taken to help campuses prepare for emerging developments in CMS and the delivery of online education. These include: analyses of and recommendations for the integration of CMS with campus information systems, experimentation with shared administration, faculty training, and support services among institutions, cooperative RFPs for CMS/Campus Information System Integration.		DECC should convene a taskforce to implement recommendations cited in d).
P.3	27	***Portals* for distance education:** **a) Participate in the new State Portal for providing certain functions of wide-spread interest. Institutions should continue to develop their existing portal and Web pages to maintain their distinctive identify and to serve their constituency. The common Distance Education Portal should have the following features:**	Agree. Again, implementation of these functions should be a task of the DECC.	-CCHE should fully participate in the State Portal initiative, requesting sufficient funding to cover the items listed. -DECC should be

	catalog/schedule of courses and programs, "consumer" information on distance education, a comprehensive list of higher education institutions with links to their home Web sites, a "getting started" guide providing information on technology and skills required for successful use of distance education courses, latest versions of software "plugins" commonly used in online education, a calendar of online educational and cultural activities available for free to Colorado citizens, *Time and Travel Expense Calculator* to enable students to calculate what they'd save in travel time/costs in distance education, and *Online Suggestion Box* on how services, offerings, etc. can be improved. **b) Additional functions should be considered at a later time by the CAO and CFO groups. They might include: market research activities aimed at Colorado, National and Global Markets, marketing/advertising activities aimed at Colorado, national and global markets, statewide RFP process for permissive purchasing of SST's, standards that promote the portability or conversion of content between different development tools and delivery systems, a database of sharable instructional components, learning modules, following the Project Merlot model, coordinating service staff, Links to Job Search Services, and a student ombudsman service to help resolve potential conflicts.**		operationally tasked with implementing State Distance Education Portal functionality.

P.4	28	*Specialized video and media servers* . A statewide working group should be formed to address the issue of shared central services to specifically to support distance learning buttressed by central hardware and software.	Agree.	DECC should form the recommended statewide specialized server working group in conjunction with the CIO Council.
P.5	28	*Turn-key services and external service providers*: a) institutions should decide how to use these services to complement their course offerings and supplement their resources based on their needs. b) an RFP should be issued to solicit price bids from at least two winning vendors. c) RFP's should be developed for three categories of services: (1) full service, including support for developing and converting course content; (2) Web hosting of course content developed and offered by institutions, and (3) 24x7 support. d) any turn-key service must give individual faculty members direct access for making small adjustments in course materials. Successful learning outcomes are best accomplished when faculty can tailor course content to their teaching style and their students' needs.	Agree.	DECC should develop and issue the RFP.
P.6	28	*Back-end student administrative service systems*:	Agree. A course transfer	-DECC should establish standard file formats for

		a) institutions should be responsible for integrating their CMS and SIS. Standard file formats should be developed for exchanging data between institutions, the common platform, and external service providers. b) as the Academic Council works on further developing articulation agreements for transfer courses, attention should be given to the possibility of providing students with a degree planning tool that can be applied between cooperating institutions. Should a planning tool would allow students to plan for a degree when considering course offerings from multiple institutions. c) the institutions' SIS will serve as systems of record for student matriculation, registration and academic records, tuition calculation and billing, and financial aid for the student's home institution. d) as the program plan for expansion of distance education is further defined, consideration will be given to providing common student service functions for non-degree students and non-credit programs. These functions would include registration and billing.	database and degree planning tool should be included in the higher education component of the State Portal project. The recommended common student services (registration and tuition) functions (item d) should be implemented, in order: first for non-degree and non-credit students, next for students enrolled in degree programs supported by the common development fund, and then for all degree programs offered at a distance.	inter-institutional data exchange. -Funds for a transfer database should be included in CCHE's budget request to the State Portal project. -DECC should establish common student service functions as per d). -CIO Council should address SIS integration and data interchangeability.
P.7	28	*Other technology related recommendations*: a) consider joining the IMS Consortium in developing interoperability standards for course management systems and other online components. b) develop guidelines that would minimize	Agree.	Again, a DECC responsibility.

		b) develop guidelines that would minimize the cost of conversion of course content between systems.		
COURSE CATALOG TASKFORCE RECOMMENTADION				
C.1	44	CCHE should contract with one or more institution(s) of higher learning to act as the coordinator for a *Common Catalog Project*. Coordination will include methodology, design, testing, deployment and documentation. Contracted institution may also provide hosting.	Agree. Since institutions are developing their own course catalogs, it makes sense to "piggyback" on these efforts. Also, consideration should be given to partnering with the CIT.	CCHE should obtain 50% funding through State Portal project and institutions should provide the other 50%.
ORGANIZATION TASKFORCE RECOMMENDATION				
O.1	51	A *Distance Education Coordination Council (DECC)* should be established to increase awareness, expand access, assure quality, and improve cost-effectiveness of certificate and degree programs offered via distance education by Colorado public institutions of higher education through statewide coordination of resources and services to competitively serve the needs of Colorado's citizens and economy. The DECC should be comprised of representatives from each higher education system, be supported with working taskforces in each area of concern, and advise and consult with existing CCHE councils. The DECC should have adequate staff to carry out the following coordination functions: implementation of a common course catalog and platform, inter-institutional coordination of credit transfer and tuition payments, student advocacy, market research, administration	Partially agree. CCHE believes this council should be staffed by CCHE personnel.	The CCHE Commission should pass a policy resolution jointly developed with the institutions with the support of the CEOs establishing the DECC including member-ship criteria, charter, staffing, and funding guidelines as per O.1. During FY01, the CCHE CIO or designated representative

		of program development grants, quality assurance and standards, and data collection and reporting. A consensus decision-making model should be employed whenever possible. The structural organization of this council should be reviewed after a year.		should fulfill the role as DECC director. If development funds obtained in FY02, the institutions should be asked to fund this position as the DECC's first 1.0 FTE staff. In FY03, CCHE should prepare a decision item for to fund any additional needed DECC staff.
FINANCIAL TASKFORCE RECOMMENDATIONS				

F.1	54	*Student Tuition and Fee Rates* . Respect institutional differences in the alternative delivery of education. Campuses should be free to charge appropriate tuition and fees and set other policies (e.g., the application of a "window" of credit hours for a flat tuition rate) in the manner that best meets the needs of the students they are serving.	Agreed. Note CCHE comment for A.8.	No action needed.
F.2	55	*FTE Funding.* Clarify the FTE reimbursement policy for distance education courses. In reviewing the CCHE policy, recognize the importance of institutional flexibility and that, because distance education is simply a method of delivery; the State should support resident online learners in the same manner as they support resident classroom learners. While some campuses may best serve their students by putting all distance education under the continuing education "cash funded" umbrella, where FTE reimbursement is not an issue. However, for the majority of campuses where some or all online courses are best delivered within the "regular" academic structure - State funding is appropriate. In addition, the CCHE policy of not counting baccalaureate institutions' FTE delivered "off site" (with the exception of certain approved programs) is inconsistent with the CCHE policy of counting all resident FTE in distance education courses. Certainly, these two policies should be reconsidered together and made consistent if possible.	Agreed. CCHE has convened an internal FTE review taskforce which will include consideration of how distance education FTE should be handled. CCHE agrees that FTE policy for on-campus and at-distance courses should be fundamentally the same, differing, if at all, only in accordance with cost of delivery.	CCHE FTE Taskforce.
F.3	56	A central fund for content development is <u>not</u> recommended. It is not clear that this would benefit the state's distance education delivery and there are significant concerns with the	Disagree. Note A.12 provides the opposite recommendation. CCHE believes a	See A.12.

		financial impact to ongoing campus operations. In the event that a central fund is implemented, it should be done in such a way as to best maintain institutionally flexibility. A one-time state appropriation that has no impact on campus general funds would be such a mechanism. If there is also an associated requirement that the fund be maintained, and then each institution should be able to determine how it should finance its proportional share.	central development fund is necessary in order to provide incentives for constructive change in distance education practices, including: use of a common platform, collaboration in course development and delivery, adequate faculty support, and efficient, student-centered service.	
F.4	59	*Funding a central organization* : if the governing boards CEOs support the concept of some type of statewide distance education coordinating body, we recommend a council staffed by an individual who reports to the governing boards. This would be similar to the higher education fiscal coordinator who reports to the CFOs.	Partially agree. See O.1.	See 0.1.
F.5	59	*Funding the Common Course Catalog*, which would put upward pressure on quality and downward pressure on prices as students have access to a wide variety of choices, does not necessarily benefit individual institutions, but meets a public policy concern. The implementation costs should be borne by "new" State funding that does not negatively impact campus funding. The cost of ongoing operations is an issue for future discussion, perhaps by the governing boards' distance education coordinating body.	Partially Agree. CCHE plans to cover this cost through participation in the State Portal project.	See C.1.

		However, a centralized policy-making and grant making organization is not recommended. Any organization of this type would require a commitment of significant state resources. The state is already experiencing a significant annual increase in the online course enrollments, evidence that many of the institutions are already responding to the demand of the consumers through offering improved access.	CCHE does support a centralized grant making organization (see F.3 and A.12).	See A.12.
F.6	59	Regarding a *Common Platform*, the direction taken by the Common Platform taskforce is recommended, that is, that institutions continue to have flexibility to use the technologies and services that best meet their needs and spreads risk in the mission-critical delivery of distance education. There are significant financial and operational dangers with the selection of a single platform because this is an emerging industry with the inherent instability of a growth area. A single vendor, in essence, places all our eggs in one basket.	Agree.	See P.1 and P.2.
PRIVATIZATION RECOMMENDATIONS				
V.1	66	Institutions should continue to support enterprise structures for continuing education, life-long learning markets for adult learners when the program and course content is substantially distinct and separate from programs offered on campus.	Agree.	No action required.

V.2	66	A pilot program should be established to explore how the hybrid enterprise/state-funded model may be extended to multiple institutions under differing governing boards, on a voluntary basis, in certain applicable programs of study.	Agree.	This should be a priority approach in funding programs through the central development fund. See A.12.
V.3	67	Institutions should be encouraged to form liaisons among themselves within Colorado to fill gaps in curricular offerings needed to address local student market needs.	Agree.	This goal should be augmented through the funding policies for the central development fund. See A.12 and O.1.
V.4	67	The collective body of State institutions of higher education should form a buying cooperative and secure permissive master State awards for (a) e-learning ASP services, (b) distance education software licenses, and (c) licensed content, where the procurement awards include specific tiered pricing structures rewarding higher volume with price discounts.	Agree.	This recommendation is a reiteration of P.1 through P.5.

BUDGET SUMMARY

The above recommendations each has budget implications. A full analysis of the budget requirements for the full implementation of these recommendations is beyond the scope of this report. Such requirements would include both capital and operational funding. They would be fulfilled from a variety of sources, including State Capital Funds, the State General Fund, institutional discretionary funds, and student tuition and student fees. To the extent possible, the Proposed Action column in the Recommendations Summary includes suggestions with regard to funding amount, source, and timing. However, certain capital items have been developed in this report in sufficient detail to present a rough, three-year capital budget, as follows. Note it is CCHE's position that the market study be funded by institutions.

CAPITAL BUDGET ITEMS
CCHE Distance Education Taskforce Recommendations

	Note	FY02	FY03	FY04
Market Study	(1)	400,000		
Portal Services				
- Common Catalog	(2)	135,825	145,399	152,669
- Credit Transfer Database	(3)		50,000	20,000
- Course Management Services	(4)	250,000	500,000	750,000
- Media Servers	(5)	100,000	150,000	200,000
Course Development Fund	(6)	2,953,120	2,953,120	2,953,120
TOTAL		**3,838,945**	**3,798,519**	**4,076,789**

NOTES

(1) Other states' studies have ranged from $200,000 to $400,000. We target a phone survey of 4,000 persons in various student markets in Colorado. A good estimator of market survey research is about $10 per contact, which yields the estimated budget of $400,000.

(2) Common catalog as proposed by CCHE Distance Education Taskforce. Cost elements include: server and software, development, site hosting, contingency, marketing.

(3) Credit transfer database figure is estimate for development, then maintenance.

(4) Course management services are to support application service provider (ASP) support of distance education users in courses supported under course development fund. State goal is 10% of total on-campus enrollment, or about 77,500 headcount. Current headcount is about 17,500. To fill the gap we need to add 12,500 headcount per year, cumulative. Typical ASP hosting charge is about $20 per headcount.

(5) Capital cost for specialized servers (streaming video and audio) to support media-enhanced distance education offerings. Cost is estimated at present. It is estimated that disk space (the principal cost) is about $100/hour high-quality video. Thus, this request will support 1,000, 2,500, and 4,500 hours video content.

(6) Course development fund is estimated at $8,000 per course, $4,000 development and $4,000 maintenance. Goal is to reach 10% of all degree program courses. There are 18,457 such courses, so 10% would be 1,847 courses. The goal is to develop these course over a five-year period. That is 369 courses per year at $8,000 each totals $2,955,200 per year.

INTRODUCTION

Background on Distance Education in Colorado and Other States

The fall 1999 HB99-1289 Report, Chapter XII on Distance Education, provided the following snapshot for 1999 for distance education activity in Colorado's public higher education institutions:

- 27,031 course enrollments in 2,973 courses overall (all forms of distance education)
- 12,747 course enrollments in 1,714 courses online only
- average class size of 10-12 students
- course offerings at each level of instruction, in both 2-year and 4-year institutions
- online (typically Web-based) classes dominate and are rapidly accelerating relative to other media
- course offerings and enrollments of video-based classes are declining
- distance learning is most used (69 percent) by students in lower division courses

For national context, a recent SHEEO survey [Epper, Ronda Martin, *State policies for distance education: A survey of the states:* State Higher Education Executive Officers, Denver, Colordo, March 1999.] of 44 states found that:

- 33 participate in state or regional virtual university initiatives
- 15 have created their own distance education coordination entity
- almost all have some system-wide utility functions, including:
- 20 have central catalogs
- 10 provide student services (from admissions to financial aid)
- 10 have content development
- 9 have multi-campus collaboration in statewide degree programs
- over half require additional approval to offer existing programs at a distance
- most have eliminated geographic service areas
- most charge the same tuition for regular and distance classes.

Colorado has yet to establish any of the above statewide coordination functions.

Authority and Direction for this Report

House Bill 99-1289

This is the second of two annual reports to the Colorado General Assembly on distance education as required by HB99-1289. The first report was included in the overall HB1289 report filed with the General Assembly at the and of 1999.

This second-year HB99-1289 on distance education reviews and makes recommendations regarding the potential for increased use of distance education to meet the needs of populations throughout the state. Specifically, the HB1289 legislation requires that in FY00 CCHE prepare

reports:

1. examining the potential for increased use of privatization in obtaining and applying distance learning techniques and technologies by State institutions of higher education (Section XVII, Part VI), and
2. describing information concerning the use and coordination of technology in higher education systems in other states and between the state system of higher education and other states (Section XVII, Part VII)
3. recommending how the State institutions of higher education can more efficiently and cost effectively use distance learning to meet the needs of higher education and the demands of populations throughout the state including consideration of appropriate areas for privatization in the delivery of distance learning services (Section VIIb).

These three requirements are addressed as follows in by this report:

1. The final chapter of this report addresses the issue of privatization and makes four recommendations.
2. The appendix to this report contains a section summarizing the state and national context of distance education.
3. The main outcome of this report, as presented in the Executive Summary, is a set of 32 recommendations regarding the efficient and cost effective use of distance education by Colorado institutions of higher education.

Direction form CCHE Executive Director

The authority and direction for convening a statewide higher education taskforce to develop an approach for coordinating distance education programs statewide is based on direction to the CCHE CIO (Chief Information Officers) Council from the CCHE Executive Director with the consensus support of the CCHE CEO Council. The CEO Council recognized that some statewide means of sharing is required both with respect to the technology to support distance education and the development and delivery of distance education courses.

Specifically, the CCHE CIO Council has been directed by the CCHE Executive Director and Director of Policy and Planning to work with the CIO Council to establish a common platform and common core for distance education courses across all higher education institutions. This specific charter is explicitly addressed in the report that follows, including substantial refinement and accommodation of these two concepts to our best understanding of what distance education is and how it is currently and may possibly be conducted in Colorado.

Formation of the CCHE Distance Education Taskforce

The CIO Council, in taking up this task, conducted five general meetings (throughout July, August, and September, 2000) with broad representation drawn from Colorado higher education institutions and systems, including representation from the Academic Affairs Council, the Chief Financial Officer Council, distance education program directors, faculty, and students. Participation in the At Large Taskforce is presented in the appendix. Further, six topical taskforces were formed to provide the expertise and direction needed in specific areas important to the goal. The six taskforces were Market Study, Academic, Common Platform, Common Course Catalog, Organizational, and Financial. Each taskforce was assigned a chair who convened a broader group with knowledge, expertise, and experience pertinent to its topic. The topical taskforces were

also given a charter to address certain specific issues in their area identified by the At Large Taskforce.

Product of the Taskforce

Each taskforce has prepared a report summarizing its considerations and providing policy recommendations and funding implications. These reports make up the chapters of this report. The participants on each taskforce are recognized at the end of their chapter. It is important to note that these chapters are presented here as received, without modification, as the consensus view of taskforce participants.

CCHE Review of Taskforce Recommendations

CCHE staff and executive management have compiled a summary of the taskforce's recommendations. In this compilation, CCHE has taken a position with respect to each recommendation and indicated proposed action. The summary is presented in the Recommendations Summary herein. Also included in the Recommendations Summary is a compilation of the budget implications of the recommendations.

Guiding Principles

At the outset, the taskforce adopted the following set of principles to guide its deliberations. That is, each conclusion and recommendation was tested against the following guidelines. It is our belief that all of the recommendations made are consistent with each one of these guiding principles (presented here with some of the more obvious implications listed underneath each):

1. Growth and coordination of distance education programs should be based on incentives that encourage collaboration, cooperation, and build synergistically on existing institutional strengths.
2. An institution's role and mission, academic standards, and commitment program assessment are independent of mode of instructional delivery.

- Appropriate State (FTE, capital) support should be available to both.
- Tuition and fees will vary institution-to-institution, reflecting differing cost structures.
- Student services should be equally available for the distance and the on-site student.
- Accreditation standards should be applied equally to distance and on-campus programs.
- Rigorous assessment of course, teacher, and student are a requirement of both on-campus programs and distance programs.
- Needs specific to distributed education courses must be fully supported.

3. Information technology competency is desired of all faculty and students in recognition of its cultural and economic importance.

- The synergy between technology-enhanced and distributed education should be recognized and exploited.
- Technological tools required for professional competence in a discipline should be available both to the classroom and the distant student.
- Faculty training and support in the use of technology for on-campus and distributed programs should be integrated.

- There is a need to assess and improve the effectiveness of the use of technology in instruction.

4. Distributed education transcends location.

- Students should be able to access courses outside their home institution.
- Administrative and organizational practices (including registration, tuition, credit transfer) should contribute to student access to and success in distributed education.
- Students need an advocate to help resolve home-vs.-delivering institution issues.
- Distributed education should maximize access for students with disabilities.
- Collaboration and the use of standards in the development and sharing of course content should be encouraged.

Goals For Colorado Distance Education

The following goals and expected outcomes were formulated by CCHE staff and referred to the taskforce for their consideration in developing recommendations:

1. Increase access for Colorado students. Significant markets include:

- adults continuing education
- completing degrees
- rural
- on-campus students with course schedule conflicts
- on-campus students that prefer it

2. Create a marketplace for distance education

- recognize distance education transcends geography, we need to make all courses accessible to all
- remove barriers to this marketplace
- knowing what's available -- common course catalog
- having courses be transferable, and easy to do so, and count toward major
- having tuition allowances for taking courses at non-home institutions
- having courses that start & end more frequently than semester by semester
- (open entry/open exit)
- having effective advocacy, an ombudsman

3. Make effective use of existing resources

- share common infrastructure and services (RFPs for server farms, 24X7 help, software)
- coordinate course development efforts -- not a "common core" but a "coordinated corpus"
- assure campuses are providing adequate
- quality assurance (faculty training and support)
- quality control

4. Accelerate diffusion of technology into teaching and learning -- at distance and in classroom

- create central self-replenishing pool to fund targeted distance education course development
- seed with CCF, replenish with distance education headcount assessment
- provide FTE incentives just as for resident instruction
- assure technology environment same at distance as in classroom, one leverages the other

5. Pilot new teaching paradigms that make cost-effective use of technology

- exploit economies of scale enabling the desegregation of teaching functions
- the functions are: outcomes, content, mentoring, assessment

6. Position Colorado institutions to be competitive in the global marketplace

- develop global niche markets in our "core competencies"
- offset local losses to global markets with global gains in local market

7. Incorporate distance education enrollment in capital assets management -- "clicks for bricks"

- use capital assets to capitalize a distance education course development, distance education IT systems
- avoid new construction when possible

8. Create coordinating office to administer these goals supported by institutional advisory board

MARKET STUDY TASKFORCE REPORT

Market Study Objectives

The objectives of a professional market study of the Colorado distance learning market are to:

- **Facilitate CCHE's overall goal of improved access to quality online education and competition in the global marketplace.**

- Provide CCHE and the State with data that can guide future efforts to increase college participation, persistence and completion rates in Colorado.
- Provide data on potential markets to support/validate CCHE's legislative request for funding.
- Provide key data on the size, educational priorities and other factors that will guide CCHE decisions on funding of new course development (the business plan for program investments).
- Understand potential barriers that might prevent prospective students from taking an online course.
-
- Guide marketing strategies and investments by the State and institutions.

Scope of Initial Market Study

The market study should be outsourced to a professional market research firm, with expertise in higher education preferred. CCHE should establish a Distance Learning Market Research Advisory Committee, comprised of distance education directors and market specialists and campus communications directors, to shape the development of an RFP, establish the review criteria, and evaluate the bids resulting from the RFP. This committee should make recommendations relative to the size of the survey, whether focus groups are necessary, and the general content of the survey.

The scope of the initial market study is twofold:

- collect key data on the potential consumer market within Colorado for increased distance learning opportunities,
- identify business and industry workforce needs, including emerging education and training needs.

Additional desired products of the study are 1) the ability to provide benchmark and other comparative data with other states and/or higher education systems and 2) the identification of "trends" (e.g. demographic, socio-economic) that would expand the life of the study beyond a single "snap shot" of today's markets and their needs.

Key Questions to Be Addressed

1. Who are Colorado's unserved and underserved markets?

- Identify the demographics of these markets – age, educational credentials, history of participation in online education, special needs including disabilities for learning in an online environment.
- Key populations to be surveyed would include: high school students, IT workers (entry-level and professional workers), residents on-campus and online programs, working professionals in business, health care, education and other targeted fields.
- Identify the size of these populations. Is there a sufficient market on which to develop a business and marketing plan?

2. **What educational programs and opportunities are these markets interested in?**

- **Individual courses vs. degrees and certificates?**
- **Type of degree sought (associate, baccalaureate, graduate, professional)?**
- **In what disciplines?**
- **A fully online degree vs. courses transferable to a campus-based program?**
- **Certificates, credentials?**
- **Credit or noncredit continuing education?**

3. **What educational programs, opportunities and services do existing, campus-based students want to obtain in a distance delivery mode? In addition to convenience, what do they like about online education? How much of their formal higher education coursework do they want to take in an online or distance education mode?**
4. **What criteria do students use to choose their college or program of choice—tuition, the degree, name recognition, location, family affiliation? This information will provide indicators on how to retain our Colorado market.**
5. **What is available to them in terms of access to technology and Internet access? Do they have access to modern computers and good Internet service?**
6. **What are they willing/able to pay for enhanced access to educational programs and services?**
7. **What type of learning "environment" do they prefer?**

- **asynchronous vs. synchronous communications, day/time preferences for study, etc.**

8. **What "services" should be available to ensure their success?**

- **Technical help desk services during what hours?**
- **Academic advising during what hours? By phone? By email?**
- **Tutorial/orientation to the features of the course management system**
- **Need for some in-person communications with faculty, advisors, program personnel**
- **Etc.**

In addition to studying potential <u>new</u> consumer markets, the study should examine employment trends and emerging industry workforce needs. Initially, this could be facilitated through CCHE's participation in the Colorado Institute of Technology and not added to the scope of the consumer market study thereby reducing some costs. CIT will be conducting its own needs assessment activities albeit limited to the IT industry. CCHE's broader agenda for online education can benefit both from the actual data as well as the assessment process utilized by CIT.

<u>Assessing National and Global Markets</u>

Competition in the global marketplace is intense and will likely continue as more institutions and new entities attempt to carve out their niche in national and international markets for education and training. "Niche" should be the key driver of Colorado's efforts to attract and effectively serve markets outside of the state and therefore suggests a very different approach.

Rather than a commissioned survey/analysis, the higher education institutions should do their own analyses of their program strengths and specialty areas that may be either unique or limited in number in the national and global distance education enterprise. For example, individual disciplines are keenly aware of trends, certification requirements, and professional development needs that relate specifically to their discipline. Since the national/global study is proposed as phase two, the Distance Education Coordinating Council may be involved in coordinating this activity within their respective institutions/systems.

A second study that would be valuable in understanding potential markets would be an analysis of our competitors, such as University of Phoenix, the U.S. Open University, and the for-profit virtual campuses of SUNY and others. For example, what do these other virtual campuses offer in terms of flexible transfer policies, tuition incentives such as resident-level tuition, free access to campus services, credit by evaluation, etc. Are we ready to adopt new policies and procedures that are attractive to a non-Colorado based market?

Market Analysis: An Ongoing Need

Goal #3 of the CCHE Distance Education plan addresses sharing and coordinating the use of resources with desired outcomes of increased efficiency and quality. It is strongly recommended that an ongoing process for assessing markets and emerging educational needs be assigned to the proposed Distance Education Coordinating Council. The benefits of ongoing analyses of the changing market, in Colorado, nationally and internationally, would accrue to the CCHE and to individual campuses. For example, information from the market study may point to opportunities for collaboration among institutions to develop and offer specialized programs.

Ongoing market analysis activities should include the following:

1. **Develop an ongoing process for identifying emerging workforce training needs.**
2. **Conduct focus groups. Focus groups might be formed to address specific needs, such as:**

- **Integrating clinical requirements into an online program in the health professions**
- **Designing online programs for high school concurrent enrollment**
- **Developing new IT training specialties**
- **Soliciting input on the provision of advising and other student services**

3. **Maintain linkages with the CIT planning process for new degree/new certificate development**
4. **Build into the central catalogue a response form to solicit information on desired offerings and services (e.g. CyberU.com)**

Linking Market Research and Marketing

The market study is expected to produce valuable data relative to promoting and marketing higher education's distance education programs and services to Colorado residents. For this reason, it has been recommended that the Distance Learning Market Research Advisory Committee include campus communications and marketing directors in the initial design of the survey. For example, the study may provide indicators on the size of the potential market who are regular, heavy users of the Internet, suggesting an online marketing strategy. Another market of less sophisticated technology users may do their shopping for educational opportunities through print resources available at the local school, library and grocery store (e.g. the high quality catalog produced by the Colorado Consortium for Independent Learning). As expensive as a comprehensive, professionally-executed market research study may seem, it is an important investment that requires the right kind of input, given the even higher costs associated with marketing, communications, and promotion.

The development of a strategic marketing plan should be directed by the proposed Distance Education Coordinating Council, with appropriate expertise involved. The marketing plan should consider strategies that would be funded or partially subsidized by the State. Some initial suggestions are listed below:

- **Create opportunities for cooperative marketing. For example, the cost for advertising in the in-flight airline magazines are quite expensive. Institutions may be interested in jointly funding ads targeted to busy working professionals in business and industry.**
- **Examine the partnership model between the State, communities and resorts in the Tourism industry. Are there some funding models and strategies from this industry that could be applied to distance education?**
- **The Common Catalog Taskforce has started to discuss strategies for directing potential consumers to the statewide central catalog of distance education. Clearly efforts to market the Web-site need to be linked to an overall marketing scheme.**
- **The Distance Education Coordinating Council should work with the institutions to explore options for some cost sharing arrangement to fund marketing efforts.**

Funding Requirements

Unfortunately, the timing for a legislative funding request is not in sync with the recommendation that CCHE commission a professional market study as soon as possible. Data from a professional analysis of the potential Colorado distance education market should be integrated into further plans for this distance education initiative in general and most specifically help to guide recommendations and decisions relative to common platform and new program development.

The estimated cost for a professional study of Colorado's distance education market is between $300,00 -$500,000. Funds should be appropriated by the State with opportunities for some cost sharing with CIT to be explored.

Recommendation

The CCHE should assign a high priority to the conduct of a professional market study of the Colorado distance learning market. A comprehensive analysis of the statewide market will provide the foundation for CCHE's distance education initiative, should guide program investments, and should provide direction on needed "marketing" efforts by the state and institutions. The statewide study should take precedence, in terms of timing and resources, over efforts to analyze Colorado's potential to compete nationally and globally in the distance learning business. Finally, the proposed Distance Education Coordinating Council should develop mechanisms for ongoing analyses of the changing marketplace within Colorado, nationally and internationally.

Policy Issues

1. **CCHE has articulated the goal of increasing participation rates in postsecondary education in Colorado. Can distance education be a partial solution to meeting this goal? What are the barriers to going to college now? Does distance education remove the barriers? Can distance education increase rates of persistence and completion? Does it make it easier to stay in school?**
2. **The U.S. Department of Education [Projections of Education Statistics to 2010, National Center for Education Statistics, August 2000] projections indicate that Colorado will experience an increase of 23 percent in the number of high school graduates between 1998-99 and 2009-10. Can Colorado's institutions absorb these additional new enrollments? Can they be accommodated by our current campus infrastructure? Can (and should) distance education be a partial solution?**
3. **Will there be new populations with different needs due to socio-economic changes? What lifestyle changes are on the horizon that might affect the distance education market?**
4. **The proposal that higher education institution may consider participating in some cooperative marketing efforts could be hampered by a policy which disallows use of state funds for marketing higher education programs in the State. Institutions must use other dollars.**

Market Study Taskforce Participants

- **Mollie McGill, Office of Technology and Learning Innovations, University of Colorado System (Chair)**
- **Gary Hatch, Assistant Vice President for Information Technology, University of Northern Colorado**
- **Allen Rowe, Interim Director of Instructional Technology, Metropolitan State College of Denver**
- **Vicky Seehusen, Associate Vice President for Distance Education, Community Colleges of Colorado**
- **Robert Tolsma, Executive Director, CU-Denver Online & Distance Learning, University of Colorado at Denver**

ACADEMIC TASKFORCE REPORT

The Distance Education Academic Taskforce was one of six groups established to "*develop an approach for coordinating distance education programs statewide*". The Academic Taskforce was composed of individuals who are experienced in public academic policy development, distance education instruction, distance education program implementation and distance education program management.

The charge to the Academic Taskforce was: "To Examine and Recommend approaches to the following issues:

Content and Degree Requirements

- What should be the composition of the *coordinated core*? (The coordinated core is envisioned as an inventory of online courses that meets the learning needs of Colorado citizens and represents the academic strength and uniqueness of each institution, available within a common Web supported environment.)
- How should the core be phased in?
- What quality standards should be in place?
- Identify any new transfer issues related to the presence of the *coordinated core* and recommend solutions.
- Are there issues related to course names and numbers that should be resolved?
- Is there any accreditation issues that should be examined and resolved?

Intellectual Property

- Make recommendations about *rights/ ownership/entitlements* related to online courses developed by the Central Coordinating Organization.

Development

- Make recommendations related to Faculty workload, training, support services and incentives.
- Make recommendation about course development.

Implementation

- Pose consensus and/or competitive mechanisms for allocating development responsibility under funding from a Central Coordinating Organization.
- Faculty incentives related to teaching online courses.
- Pose mechanisms related to course delivery to fully staff course sections by single or multiple institutions. To what extent would a faculty member be tied to a course developed for the coordinated core.

During a series of three meetings held on August 24, September 7 and September 19 2000 each of the issues was examined and corresponding recommendations were developed. Additionally, as the Taskforce developed its dialogue about academic issues related to distance education, with the primary focus being online course delivery, it seemed prudent to establish a set of general principles that could provide guidance to any entity developing online education for the citizens of Colorado. The remainder of this report will be devoted to succinctly articulating Taskforce recommendations.

Issues and Recommendations

Issue 1. Colorado's public institutions of higher education commit an increasing amount of their instructional resources to the development and delivery of *online* distance education, there should be a set of clearly stated principles that provide guidance for this activity to ensure that Colorado's online education initiatives will withstand the scrutiny of a national and global academic market place as well as the evolving distance education standards being utilized by regional and national accrediting associations.

Recommendation. The Academic Taskforce endorses use of the ***Guiding Principles for Distance Learning in a Learning Society*** which were first developed by the *American Council on Education* in 1996. The Distance Education Training Council, a national accrediting organization approved by the U.S. Department of Education, has also adopted these guidelines.

Guiding Principles:

Learning Design

Principle: Distance learning activities are designed to fit the specific context for learning the nature of the subject matter, intended learning outcomes, needs and goals of the learner, the learner's environment, and the instructional technologies and methods.

Subprinciples

Learning opportunities include a clear statement of intended learning outcomes, learning content that is appropriate to these outcomes, clear expectations of learner activities, flexible opportunities for interaction, and assessment methods appropriate to the activities and technologies.

1. Elements of a learning event—the learning content, instructional methods, technologies, and context—complement each other.
2. The selection and application of technologies for a specific learning opportunity are appropriate for the intended learning outcomes, subject matter content, relevant characteristics and circumstances of the learner, and cost range.
3. Learning activities and modes of assessment are responsive to the learning needs of individual learners.
4. The learning experience is organized to increase learner control over the time, place, and pace of instruction.
5. Learning outcomes address both content mastery and increased learning skills.
6. Individuals with specialized skills in content, instructional methods, or technology work collaboratively as a design team to create learning opportunities.
7. The learning design is regularly evaluated for effectiveness, with findings used as a basis for improvement.

Learner Support

Principle: Distance learning opportunities are effectively supported for learners through fully accessible modes of delivery and resources.

Subprinciples

8. The providing organization has a learner support system to assist the learner in effectively using the resources provided. This system includes technology and technical support, site facilitation, library and information services, advising, counseling, and problem-solving assistance.
9. The provider considers the needs for learner support in relation to the distance learning mode(s) used and makes provision for delivery of

10. Access to support services—such as scheduling, registration, and recordkeeping—is convenient, efficient, and responsive to diverse learners as well as consistent with other elements of the delivery system.
11. Support systems are accessible to and usable by the learners and are sufficiently flexible to accommodate different learning styles.
12. The provider discloses to the learner all information pertinent to the learning opportunity—such as course prerequisites, modes of study, evaluation criteria, and technical needs—and provides some form of orientation for those desiring it.
13. Support systems for each learning opportunity are reviewed regularly to ensure their currency and effectiveness

Organizational Commitment

Principle: Distance learning initiatives must be backed by an organizational commitment to quality and effectiveness in all aspects of the learning environment.

Subprinciples

14. Involvement in distance learning is consistent with the overall mission of the provider; policies regarding distance learning are integrated into the provider's overall policy framework.
15. The providing organization makes a financial and administrative commitment to maintain distance learning programs through completion and to support faculty and learner services needed to ensure an effective learning environment.
16. Administrative and support systems (registration, advising, assessment, etc.) are compatible with the learning delivery system to ensure a coherent learning environment.
17. The organization's curricular and administrative policies incorporate the needs of distance learning as well as traditional learning activities.
18. The provider makes a commitment to research and development of distance learning, maintaining a systematic evaluation of the content, processes, and support systems involved in its distance learning activities.
19. The provider makes a concomitant investment of resources and effort in professional development and support of both faculty and staff involved in distance learning.
20. The providing organization recognizes effective participation in distance learning through its promotion and reward system for faculty and staff and ensures that its policies regarding promotion, tenure (if applicable), and departmental/program funding reflect the integration of distance learning into the organization's mission.
21. The policies, management practices, learning design processes, and operational procedures for distance learning are regularly evaluated to ensure effectiveness and currency.
22. The provider does not distinguish between learning accomplished at a distance and learning accomplished through other means in recognizing learner achievement

Learning Outcomes

Principle: Distance learning programs organize learning activities around demonstrable learning outcomes, assist the learner to achieve these outcomes, and assess learner progress by reference to these outcomes.

Subprinciples

23. When possible, individual learners help shape the learning outcomes and how they are achieved.
24. Intended learning outcomes are described in observable, measurable, and achievable terms.
25. The learning design is consistent with and shaped to achieve the intended learning outcomes.
26. Distance education media and delivery systems are used in a way that facilitates the achievement of intended learning outcomes.
27. Learning outcomes are assessed in a way relevant to the content, the learner's situation, and the distance education delivery system.
28. Assessment of learning is timely, appropriate, and responsive to the needs of the learner.
29. Intended learning outcomes are reviewed regularly to ensure their clarity, utility, and appropriateness for the learners.

Technology

Principle : The provider has a plan and infrastructure for using technology that supports its learning goals and activities.

Subprinciples

30. The technology plan defines the technical requirements and compatibility needed to support the learning activity.
31. The technology plan addresses system security to ensure the integrity and validity of information shared in the learning activities.
32. The technology facilitates interactivity among all elements of a learning environment and places a high value on ease of use by learners.
33. The technology selected for distance learning is fully accessible and understandable to learners and has the power necessary to support its intended use.
34. Providers communicate the purpose of the technologies used for learning and, through training, assist learners, faculty, and staff to understand its etiquette, acquire the knowledge and skills to manipulate and interact with it, and understand the objectives and outcomes that the technologies are intended to support.
35. The technology infrastructure meets the needs of both learners and learning facilitators for presenting information, interacting within the learning community, and gaining access to learning resources.

Issue 2. What to call and how to identify the online courses that will compose the catalogue of online courses that will be accessible through an electronic portal.

There was unanimous support for the concept of including all existing online courses as the base of Colorado's coordinated online course

initiative. The only qualification was to permit each contributing institution to decide whether or not there might be some online courses that they may not want to include in the catalogue. Reasons for this option may include the inability to adequately respond to global demand and the specialized purpose of some online courses. In general, however, there was agreement that the market place would be the best device to influence the continuing composition of the online catalogue.

Recommendation. To avoid confusion with existing terms used in Colorado higher education, like the common core, the committee recommends that the existing pool of online courses that will form the base of the coordinated online course initiative be referred to as the *Online Course Data Base.*

Issue 3. The perceived *intellectual environment* will impact the development of new online courses and will be extremely important to the success of the Colorado's coordinated online course initiative.

Recommendations.

1. Faculty should be free and encouraged to bring forward creative ideas for new online courses that address not only contents; but also, also creative ways to use the technology associated with online course delivery.

2. New online courses should address the needs of the communities that each of the public colleges serves. The academic market place will be one of the best ways to determine which courses should be offered online.

3. The quality of new online courses developed by public colleges should not be compromised in order to respond to unsubstantiated market forces.

4. Institutions should be free to develop and offer online courses that are not included in the "online course data base".

Issue 4. The framing of Intellectual Property Policy within the context of traditional higher education values is one of the most important issues to be resolved.

Recommendation. The Academic Taskforce has not had sufficient time to develop a comprehensive recommendation on the resolution of Intellectual Property issues. For the present, it recommends that systems that have IP policies continue to develop online programs within the perimeters of those policies. And, as soon as possible, the CCHE should develop an IP policy which could be utilized by those institutions which do not have an IP policy which includes the development of online courses/programs. The Taskforce feels that this will be particularly important if the CCHE is able to provide central funding for online course development.

Issue 5. While it is estimated that, currently, about 90% of the 1700 online courses currently available from public colleges in Colorado are transportable to other Colorado public colleges, the challenge of transferability will increase as the volume and specialization of online courses increases. Professionally accredited programs, unique majors and G.P.A. standards are among a few of the issues that will need to be considered.

Addressing these issues at the beginning of the online project can also offer a major service to the consumers of online courses. It is recognized that for many major/minor-specific courses the decision about the acceptance of a course by the receiving institution lies with the appropriate department chairperson.

Recommendation. For each course listed in the coordinated online catalogue, provide direction on the transferability of that course to other Colorado public colleges. A Taskforce to work on this project should include curriculum officers, transfer officials and registrars. In addition existing Transfer Policy should be reviewed and modified to accommodate the growing tendency of students to use the online mode to build a class schedule and thereby increase course transfer traffic. The ability of students to electronically reach out for a course while remaining at their home institution suggests a new way of viewing course transfer. This new reality will also require that *Admission Policies* be modified to accommodate the academic phenomenon.

Issue 6. A coordinated statewide online course/program initiative will require some type of standing organization in order to provide a continuing and consistent focus for the initiative.

Recommendation. Organize a Distance Education Consortium with support and guidance from the CCHE to develop Colorado's distance education initiative. The consortium should have standing councils which deal with Academic, Common Course Catalogue, Technology Support Systems, Finances and Market Strategies. In its early stages, a Colorado Online Consortium would leverage the experience, momentum and common understandings already achieved by the six working Distance Education Taskforces which produced this report. Referring only to the academic responsibilities of a consortium, a council could be established which includes academic administrators, practicing online faculty members, extended studies officers and instructional designers who would apply established CCHE academic policies to the review and approval of new online courses/programs. Specific academic issues that emerged from the coordinated online initiative would be referred to existing administrative units or committees for resolution and/or policy recommendation.

Issue 7. Student Academic Support Services. The Academic Taskforce recognizes that there are specific academic student support services that must be available, if the coordinated distance education initiative is to thrive. Academic Advising, Registration, Payment Services, the acquisition of course related materials, and 24x7x365 support are examples of the minimum needed services. Colorado institutions are in various stages of development with respect to these services. To insure that students receive adequate support, it may be necessary to include support services as one of the screens when an institution proposes to offer a new online course/programs. The thoughtful development of academic support services is also an opportunity for Colorado to pilot electronic screening mechanisms for the purpose of directing students to the most appropriate online course or suggesting other instructional modes which are more appropriate to the students learning style.

Recommendation. The development of new online course should include appropriate academic support services to insure student *persistence* and retention in online courses.

Issue 8. Establishing an equitable and market sensitive tuition rate.

Recommendation. If a common online tuition rate is established, that rate should not place any students, who are currently able to take online

courses from public institutions, at an economic disadvantage. Tuition rates should be established with the primary focus on Colorado residents and secondarily on the out-of-state academic market place.

Issue 9. Before new online program/course are developed, a "needs assessment" should be conducted. Because many high demand courses, including many general studies courses have already been reformatted for online delivery, the composition of the next generation of courses is not clear. Demand for new online programs/courses needs to be measured in conjunction with workforce development needs, regional and community development requirements, access by potential students to adequate technology and the rapidly increasing number of online course providers.

Recommendation. Conduct either a statewide or selectively focused "needs assessment" that tests the potential for: online course demand in content areas that respond to workforce development, regional and community educational needs and appropriate technology required for online courses. Potential demand should also measured against the increasing number of providers. The Taskforce agrees with the direction suggested by the Market Taskforce.

Issue 10. What criteria should be considered in the development process for new online courses?

Recommendation. Program/course demand, similar or duplicate courses, an assessment process and highly evolved interactive design are among a few of the criteria that should be considered when new courses are being developed. The Taskforce endorses the "Learning Design and Learning Outcomes Subprinciples" presented as a part of Recommendation 1.

Issue 11. Incentives for both faculty and systems/institutions will be essential to encourage the growth of online program/courses.

Recommendation. For faculty members who are encouraged to develop online program/courses, incentive options should include reassigned time for course development, extensive and *continuing* faculty development, monetary incentives, and assistance from instructional designers. In cases when faculty develop unique courseware, software or any marketable online enhancement, there will be opportunities for faculty to share revenues.

Incentives for institutions could include funding incentives which are linked to: continuing support for the electronic delivery of online courses, technology renewal, instructional technology staff positions, inclusion into the funding section of QIS for online course development and the use of online courses delivered by other Colorado public institutions.

Issue 12. The potential for using online delivery to efficiently and effectively improve access to course/programs for Colorado citizens is one of the most significant public education opportunities since the inception of the community college movement. Now that many of the most desired online courses have been developed, it would be prudent to engage a broader state-wide perspective in continuing development of new courses/programs.

Recommendation. To maximize the potential for the development of new online courses and programs within Colorado public higher education,

to provide an incentive to develop specific programs that serve priority economic development goals and to maximize the potential for statewide access to higher education for all Colorado residents through an online delivery mode, the Taskforce recommends the development of a centralized funding source. In making this recommendation the Taskforce encourages the implementation of a funding process which is modeled on the successful Programs of Excellence.

Selected Common Standards & Best Practices Reference Material and Commentary

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Indicators of Good Practice in Undergraduate Education: A Handbook for Development & Implementation, NCHEMS 1996 www.NCHEMS.org/Publications/indicators_of.htm

Evaluating Distance Learning Programs, Flashlight Project, www.tltgroup.org/programs/flashlight.html

Guiding Principles for Distance Learning in a Learning Society, The American Council on Education, 1996. (Source for the principles recommended in **Recommendation 1.)**

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COMMON PLATFORM TASKFORCE REPORT
A Common Framework for Leveraging Technology to Expand Distance Education Programs in Colorado

Introduction

In the last few years, the public Colleges and Universities of Colorado have gained considerable experience using technology to extend the teaching and learning environment beyond the traditional classroom. While we have a history of using correspondence and interactive television, the big growth area, and the topic for this report, is Web-based online instruction. This technology is used to supplement the instruction students receive in campus classrooms as well as provide courses and even complete degree programs for students at a distance. In many cases faculty use technology to supplement their campus courses, and over time have developed the skill and material necessary to provide their courses completely online. Although the goal of this report is to make recommendations concerning distance education, it is crucial to understand that the technologies used to enhance campus instruction and to offer distance courses are often the same, and the same faculty often use them for both purposes.

The public institutions of higher education have primarily aimed their distance courses to provide comprehensive learning experiences, rich in educational content. The goal is to provide equivalent learning experiences for students at-a-distance as for on campus. The institutions have not targeted their efforts only at the narrower skilled-based training market.

The software tools necessary to create technology environments to support this more complex educational experience are still in their infancy. Much experimentation still needs to take place. Nevertheless, we believe the scale of campus activities in this area, our growing knowledge of the art of distributed learning, and the maturing of technologies makes it an appropriate time to examine the relevant standards, services and

echnologies (SST's) that are required to increase the quality and efficiency of distributed learning.

The best strategy at this time is providing a ***common learning framework*** for developing and delivering distance education courses. A common learning framework builds on the programs, courses, and expertise already in place at institutions. It leverages the resources and assets of residential, on-campus instruction with distance education programs. It encourages collaboration and sharing of course components and course content. It requires agreement on standards for sharing information and content. It allows for dynamic sharing of information over a network or cooperating platforms.

A common framework consists of three distinct platforms: A Common Platform, Cooperative Platforms, and Institutional Platforms. For our purposes, a platform is a collection of hardware and software providing a set of services. The different services and components of the platforms are described below but first a definition for the different platforms is given:

A Common Platform: Those standards, services and technologies (SST's) that all institutions can share.

> Example: It may be in the public interest to have a catalog and/or schedule of all distance education courses offered at a distance by any public institution.

Cooperative Platforms: Those SST's that it makes sense for groups of institutions to share.

> Example: Groups of institutions may choose to share a video server if their lack of in-house technical staff or low utilization rates makes it ineffective or inefficient to operate their own. Libraries are using cooperative platforms to share digital learning materials.

Institutional Platforms: Those SST's it makes sense for each institution to manage individually.

> Example: Specific technologies closely managed and controlled by academic programs that highly leverage residential instruction with distance education.

Key Services and Components of a Common Framework

A number of distinctive components comprise the services and technologies required for online education. Almost all of these different components are in place today on institutional platforms. But, the products are quickly evolving. At this time, we have identified six technology components. These components will reside on the different platforms of the common framework, and are introduced below and further described in subsequent sections.

- Portal(s): A portal is a gateway for accessing services and information that may derive locally or, more likely, remotely, i.e., provided by other organizations. A portal presents to the user pertinent services and information in an organized fashion. Portals are useful for integration of electronic services, for personalization, and for "pushing" information to users of the portal. Each higher education institution

has a portal to the institution now. It is their Web home page and the collection of Web pages that are used by their community of students, faculty, staff, alumni, and others. Commercial software products are available to help institutions manage these information and communication functions. They can integrate course delivery systems with the whole spectrum of other campus information systems and services. Today's commercial products are not very flexible.

- Software Tools for Developing Course Content: These are tools used by faculty to develop multi-media, Web-based course content. A number of standard products are in use and range in sophistication. The tools are typically used on the faculty member's PC. Students will often use the same tools to complete homework assignments and participate in classes.
- Course Management Systems: CMS's, or LMS's (Learning Management Systems) as they are sometimes called, are software programs and information systems designed to assist instructors with the delivery of online education. They are used to organize online material and present material to the students. They also provide essential electronic interaction between faculty and students, and between students and students. They offer faculty academic and administrative tools such as calendars, grade-books, student assessments, and test creating software. Administrative tools of this type are available as stand-alone products, often with more advanced features and functionality than those products integrated within CMS. Faculty are making increasing use of these products as the products become more sophisticated and easier to use.
- Web Servers and Related Software: The workhorses of online education, these are the computers and related software which deliver Web-based online education. Many higher education institutions have developed a fairly sophisticated array of servers to support distance education and residential online education. The software provides essential services such as access authorization, directory services, encryption, audit logs, performance management, redundancy, and basic Web services for other application software.
- Specialized video and media servers: In a later section, these are characterized as advanced technology servers to distinguish them from the current state of learning technology that is widely deployed at that time, and is therefore a "moving target." Advanced technology is used mostly by "early adopters." Video servers will allow faculty to incorporate more multi-media content into their courses to better engage students and to provide additional learning material. Today's video quality is not very good but is improving rapidly. Video servers are expensive compared to standard Web servers.
- Back-end Student Administrative Systems: Each institution uses a Student Information System to manage its student administrative processes that include admissions, registration, financial aid, payment of tuition, and academic record management. In the future, these systems will need to become more integrated with the CMS's. Many of the Colorado higher education institutions have Web-based student services that are tied directly to their Student Information Systems. Students can already conduct many of their routine administrative needs through the Web. These include applying for admissions, registering for courses, paying tuition, checking on financial aid status, requesting a transcript, and checking on degree progress.
- Turn-key Services and External Service Providers: Higher education institutions use services from e-College and Jones Education. For example, UCD and UNC uses e-College to develop and deliver a large number of distance education courses. Metropolitan State is using Jones for all of their online offerings. Other venders (e.g., Blackboard), who in the past have offered only software, now are beginning to offer similar sets of services. Vendors vary considerably in the services they offer and the degree to which those services can be unbundled and purchased ala carte. External vendors remain a vital option. They can often provide a quick means for institutions to develop courses, and for smaller institutions with fewer resources a viable avenue for providing additional offerings. There are many tradeoffs in choosing the right approach, both economic as well as programmatic.

Further Assertions and Assumptions

The following assertions and assumptions guided our recommendations.

1. Software and services market. The market for courseware and course management systems is quickly evolving. There are no clear winners. New vendors are appearing with new product offerings. Many industry observers expect a significant consolidation of the market in the next few years.

   Implications: Be careful in betting on any one vendor at this time in the product areas of CMS, content provider, and portals.

2. Leverage existing technology between residential and distance ed. There is a significant amount of course content being put on the Web for residential, on-campus instruction. These materials are used at a distance, albeit short (on-campus PC labs, residence halls, off-campus housing). In some cases the courses are converted to distance courses using the same content and technology. For example, UCD is using Blackboard, a CMS product, for on-campus courses. Many of these courses are evolving into hybrid on-campus and at-a-distance courses with the potential to become fully at-a-distance courses.

   Implications: It is critical that solutions for distance education be consistent with our on-campus environments. Online content that is developed should be able to be used in both campus and distance environments. It should be transferable between either environment.

3. Courses should be managed by academic units. In a survey conducted by the Gartner Group on e-learning, they found that the highest student completion rates and satisfaction were in those courses where faculty controlled the content and managed the course offerings (completion rates 92% of traditional classes). Students had the least satisfaction and completion rates in those courses controlled and managed by separate distance education organizations that were not part of the academic structure that managed academic affairs on campus (33%). *[From a presentation by Michael Zastrocky at the Gartner Group Spring 2000 Symposium]*

   Implications: Faculty must be involved in both course development and course enhancement. Students are more satisfied if the courses are offered as part of regular academic programs. In addition, degree programs offered by academic departments ensure that students become well-educated, informed citizens. Moreover, offering distance education directly from a central State organization may not be as effective, and may not be experienced by students as equally satisfying as if they were offered through the normal academic structures of individual educational institutions.

4. Faculty support. Faculty support is one of the greatest needs in developing course content and in making effective use of CMS. The tools are still difficult to use. Faculty are still exploring ways to make the best use of the tools. Faculty time should be spent on those things that most directly enhance learning, i.e., content and pedagogy as opposed to "navigating" through complex software systems. Support personnel include individuals with knowledge of technology and pedagogy. Content knowledge is a big plus for support personnel.

   Implications: This will require an investment in new staff or alternatively contracting for support. Universities can use graduate students for

some tasks. Well-proven templates can reduce the support time required. Access to re-useable course components or modules can reduce support time. High-end features such as video components require a higher degree of support and are more costly than lower-end multi-media modules.

5. Student support.
experience poor network performance. An increasing number of students are entering institutions with technical skills but a significant number lag behind.

Implications: Technical literacy and computer/internet skill courses are important and need to be offered. Offering such courses at distance poses special challenges as noted above. A 24x7 high-quality help desk would be valuable. The help desk must be able to answer questions covering a broad-range of products. No outside vendor can provide cost-effective full service but outsourced help-desks should be considered. Some of us believe that the need for a 24x7 technical help desk is essential and will be a need for a long time. Others believe that there is less need given the number of students who are engaged in distance education courses without this kind of 24x7 support and who do not have a lot of technical questions. This is a key service that continues to be a challenge to provide.

6. Innovation and experimentation. Effective models of delivery are continuing to evolve. We are in an early stage of implementation with rapid adaptation. Innovation and experimentation should be encouraged. They improve the quality of learning.

Implications: Avoid an overly centralized, one-size-fits all approach. Take advantage of developments already in place in resident instruction and distance education instruction. Be creative in integrating services across different platforms and organizations. An assessment of the effectiveness of technology should be part of the effort, including, at a minimum, satisfaction surveys of users. This service would provide feedback as to the performance of the company as well as the effectiveness of various learning technologies. This could serve to "steer" the activity in appropriate directions in the future.

7. Standards. Standards for interoperability and reuse of content are in nascent phases but evolving. Significant work is being done by the IMS Consortium and others to make it easier for information and transactions to be shared among different products and over a network of learning platforms. As organizations continue to seek alliances and partnerships, it becomes increasingly important to use systems that have a high-degree of interoperability using common standards.

Implications: In the future, a common product will be much less important for managing TCO, Total Cost of Ownership. Given the increasing connectedness of organizations and the increasing syndication of information products and services, enterprises are facing the challenges of providing sophisticated interoperability of systems. Dynamic interfacing different systems will become more of the norm. At the same time, for reasons related to TCO, it is important to choose a small number of standards for product selection. A few wisely chosen products with standard interfaces can often be better than one, large monolithic product from one vendor.

Implications: Clearly, solving the transportability issue is a problem that rests solely with the vendors. However, we as purchasers must choose products and encourage features with this in mind. We must seek products that comply with common standards; and seek vendors

committed to adapting their product to meet emerging standards. Such vendors must have the resources and ability to evolve their products accordingly.

8. Best of breed. Faculty does not want to use more than one product (to minimize learning time and increase overall effectiveness). But, faculty want to use the product that is best suited to their discipline, teaching style, and their student needs.

   Implications: Best of breed products with a high degree of interoperability will be optimal for large institutions.

9. Conversion costs.
   It depends on how much content was developed using standard Web tools, following standards.

   Implications: With foresight, course content can be developed with the intent to use it in different CMS products. Courses developed for one CMS can be converted and reused in another CMS product. Guidelines and standards should be developed and faculty encouraged to follow them.

10. Middleware not ready. Institutions and software vendors do not have common solutions for access authorization, directory services, or encryption. In general, the so-called middleware layers are in state of development and flux. The middleware is essential for good interoperability and peer-to-peer information exchange.

    Implications: The lack of robust middleware will continue to impede the development of a broad range of services. A central solution is not the answer given the need for interoperability between many other systems.

11. Home institution still vital. Many essential services for students are based at their home institution. These include student administrative services such as registration and financial aid; and student academic services such as advising, career counseling, and library services. These services use IT systems and institutional processes and policies.

    Implications: The amount of effort to integrate with our existing back-end databases will be significant. Standard interfaces and data formats should be defined to facilitate exchanging data between institutional based systems and the common platform housing the common catalog and other services.

12. Portals – concept or product? Portals can provide a degree of user consistency and integration. No one portal product will serve the needs of a large enterprise. Rather, organizations are likely to use multiple portal products and services, with the onus of tying them together to serve the end-user better. Some examples of portals include Campus Pipeline as a portal to the SCT SIS products. Campus Pipeline is likely to be the portal for WebCT CMS. Blackboard Inc. has its own portal. PeopleSoft has a portal service to provide Web services for SIS and HR. PeopleSoft promises integration with vendors such as Blackboard and WebCT. There are other higher education portal products as well as general portal products such as Yahoo!'s new portal product for businesses. Portals are useful for integration, for personalization, and for "pushing" information to end-users. Promises of services such as "single sign-on" need to be taken with a grain of salt. Portals that are

implemented to provide personalized services to individuals require a user login and password. The issue of who maintains and supports this database for the over 4 million citizens in Colorado is huge and unresolved.

Implications: Portals are another integration issue. An off-the-shelf portal package will not be robust enough for all needs. The proposed solution must integrate with other services and portals such as that of the Colorado Institution of Technology (CIT).

13. Aggregate procurement through statewide contracts for hardware and software. The success of the statewide contracts for PC/LAN's can be applied and extended to course development software, CMS, and server platforms.

    Implication: An RFP that addresses the common platform referenced above should be expanded to include existing platforms, such as WebCT and Blackboard, used both in resident instruction and for distance learning. This would provide the advantage of economies of scale and a statewide purchasing mechanism for these products, and maybe services as well. In other words, the RFP should be constructed with a view of providing statewide solutions for all electronic learning courseware and services used by all institutions for both resident and non-resident instruction.

14. High availability and performance (24x7). Given work habits of both faculty and students, the system needs to be available almost 24 hours per day, 7 days per week. Given the critical nature of the application, it is important that the solution be of high quality, both in terms of availability and performance. The goal for availability should be at least 99.99% (i.e. unavailable no more than 1 hour per year). Also, as educators evolve to incorporating advanced multimedia, such as audio and video streaming, it is important that the system support multiple, simultaneous streams of high capacity downloads.

    Implication: The costs of high availability servers is greater than non-mission critical servers. Small institutions will be challenged to provide 24x7 services (both hardware and personnel). To provide both redundancy and good local performance, the content could be automatically mirrored on servers at the Front Range GigaPoP the state hub for high-speed network access. This would require capital funds and ongoing funds for maintenance, support and replacement.

    Implication: Consolidation of institutional data centers may be desirable up to some level to achieve high availability and economies of scale. An outside service vendor should be considered for hosting 24x7 services. Care must be taken to consider the tradeoffs between a generic solution and tailored solutions required by faculty and students.

15. Accessibility.
    of The Rehabilitation Act (amended 1992), and The Telecommunications Act of 1996 (section 255), that mandate that all electronic information must be accessible by individuals with disabilities. In addition, State of Colorado in House Bill 00-1269 mandates that electronic information must be accessible by individuals with visual disabilities.
16. Migration principle. Many of the services and technology tools are not going to be permanently part of any level of platform (common, cooperative or institutional) and that they may migrate between levels. For example, some leading edge technology may initially be shared as part of a cooperative effort, but as its usage increases or the cost and skill requirements of managing it decreases, it may be more cost

efficient to move it to an institution or common platform model.

Implications: It is critical to create organizational mechanisms which can permit SST's to move between different platform levels.

Recommendations

Course Development Tools

1. Establish a state purchasing price agreement, or other suitable contractual arrangement with authoring software vendors, based on a survey of estimated usage levels from all higher education, and possibly K-12, institutions in Colorado. Education pricing should be sought separate from state agency pricing. Provide a financial incentive in the form of a subsidy by funding a significant fraction (25% or 33%) of the cost of the software if purchased through the price agreement. Recognize that institutions will be incurring increased support costs at a rate far exceeding the cost of software acquisition. Provide institutional flexibility by allowing the central IT provider at each institution to identify a subset of the list that they will support, based on their own assessments of technological impacts (e.g. to the institution's network and Web server systems) and their ability to provide technical and instructional support to application users. Expect and be prepared to support institutional requests for additional funding for additional support staff.
2. Work with the distance education providers and appropriate IT organizations at each institution to create statewide training programs and user forums for the selected authoring tools.
3. Sponsor a semiannual Web Authoring user group conference that would include presentations about Web authoring experiences, and facilitate discussions of common problems and sharing of common solutions. The user group conference could also include the authoring tool training suggested above, and provide an opportunity for users and technical support professionals to revisit the recommended software list and provide input for its evolution.
4. Create a process through which statewide participation in projects such as Merlot are considered and adopted if appropriate. It is important that academic faculty from a range of institutions be involved in, and take ownership for, decisions to participate in such projects.
5. Consider statewide participation in the Merlot project, and statewide participation in similar types of projects that exist or may emerge.
6. Sponsor the development and operation of an online repository for digital content, modules, graphic and visual elements, and audio components in formats supported by the Web authoring components which can be used by faculty at all institutions for both distance delivered and on-campus courses.

a. Create incentive programs for faculty and institutions - through intellectual property policies and management, and other means - to develop components for, and contribute them to, the repository.
b. Have faculty lead the policy aspects of the repository related to the contribution of materials.
c. License content from other sources where appropriate to make available in the repository.
d. Encourage faculty and institutions to use content from the repository.

Course Management Systems

1. A single
for the existence of our taskforce we believe it is important that we state this unequivocally. Knowing the diversity of higher education in Colorado and the subsequent variety in administrative support systems, selecting a CMS that integrates and expands services in the most effective way is vital. We would acknowledge that most of the leading CMS products will have multiple system and operating system support and that is to our advantage as each campus or system is looking at 'enterprise wide' solutions.
2. An RFP should be issued to solicit price bids for the major categories of CMS products and services. We recognize that individual institutions are often able to negotiate more favorable prices than those found in state agreements of this kind (and may still do so), and that the cost of issuing the RFP can exceed cost savings. However, we believe an RFP would lower the ceiling price any public institution would have to pay, will enable the state to exert some influence on features and services we believe these products should offer, and on balance an RFP would stand a reasonable chance of reducing costs.

   The RFP should include:

- Developmental Features
- Instructor Tools
- Instructional Features
- Student Features
- Administrator tools
- Administrative Features
- Technical Support
- Software Costs
- Hardware Requirements

3. An inter-institutional taskforce should be established to evaluate current national initiatives to develop technical standards for producing instructional materials ("objects") that could be used in any standards-compliant CMS. This taskforce should report to CCHE's Distance Education and CIO committees on the status of these standards and whether the adoption of any would encourage sharing of course content and reduce course development costs. Another challenge to be address by this taskforce and/or other groups will be the fair use and sharing of intellectual property. Although case law is just now being developed, UCITA, the Uniform Computer Information Transactions Act, DMCA, the Digital Millennium Copyright Act, ECPA, the Electronic Communications Privacy Act; have all been updated or revised with laws impacting use and distribution of instructional materials such as objects.
4. Proactive and cooperative steps should be taken to help campuses prepare for emerging developments in CMS and the delivery of online education. These include:

- Analysis of and recommendations for the integration of CMS with campus information systems. The full usefulness and functionality of CMS will be significantly effected by their ability to integrate with other campus information systems. Cooperation on this issue among institutions that use the same CMS and or student information systems should be able to bring resources to bear on the problem beyond those of any single institution.

- Experimentation with shared administration, faculty training, and support services among institutions that use the same CMS, or among institutions within the same governing board should help determine what eventual advantages, if any, can be gained by providing CMS through Cooperative Platforms rather than Institutional Platforms.
- Both CMS/Campus Information System Integration, and the evaluation of the effectiveness and efficiency of Cooperative Platforms could be advanced by a state funded RFP for groups of institutions to propose such cooperative initiatives.

Portal

1. Consider being part of the new State Portal for providing certain functions of widespread interest. The common catalog described elsewhere is an excellent example. Institutions should continue to develop their existing portal and Web pages to maintain their distinctive identify and to serve their constituency. The common Distance Education Portal should have the following features:

a. Catalog/Schedule of courses and programs
b. "Consumer" information on distance education (Info specific to Colorado institutions as well as general info on quality of distance education)
c. A comprehensive list of higher education institutions with links to their home Web site.
d. A "getting started" guide providing information on technology and skills required for successful use of distance education courses.
e. Latest versions of software "plugins" commonly used in online education.
f. A calendar of online educational and cultural activities available for free to Colorado citizens.
g. Time and Travel Expense Calculator to enable students to calculate what they'd save in travel time/costs in distance education.
h. Online Suggestion box on how services, offerings, etc. can be improved.

2. Additional functions should be considered at a later time by the CAO and CFO groups. They might include:

a. Market research activities aimed at Colorado, National and Global Markets
b. Marketing/advertising activities aimed at Colorado, National and Global Markets
c. Statewide RFP process for permissive purchasing of SST's
d. Standards that promote the portability or conversion of content between different development tools and delivery systems.
e. A database of sharable instructional components, learning modules, following the Project Merlot model
f. Coordinating service staff
g. Links to Job Search Services
h. A student ombudsman service to help resolve potential conflicts

Advanced Technology (Specialized video and media servers)

A statewide working group should be formed to address the issue of shared central services. This group, as a first assignment, should consider this document, and make appropriate changes in it. The second task for this group might be to address the possibility of some shared technology

specifically to support distance learning. However, as stated above, "the massive amount of support required prevents us from making any recommendation for shared central services, unless and until there are central support services to buttress central hardware and software." In this light, perhaps the first task would be to form a central, statewide group to address support services, both central and local support services.

Turn-Key Services and External Service Providers

1. Institutions should decide how to use these services to complement their course offerings and supplement their resources based on their needs.
2. An RFP should be issued to solicit price bids from at least two winning vendors. The resulting contracts would be non-exclusive. We believe an RFP would lower the ceiling price any public institution would have to pay, will enable the state to exert some influence on features and services we believe these products should offer, and on balance an RFP would stand a reasonable chance of reducing costs.
3. RFP's should be developed for two categories of services: (1) full service, including support for developing and converting course content; (2) Web hosting of course content developed and offered by institutions, and (3) 24x7 support.
4. Any turn-key service must give individual faculty members direct access for making small adjustments in course materials. Successful learning outcomes are best accomplished when faculty can tailor course content to their teaching style and their students' needs.

Back-end Student Administrative Service Systems

1. Institutions will be responsible for integrating their CMS and SIS. Standard file formats should be developed for exchanging data between institutions, the common platform, and external service providers.
2. As the Academic Council works on further developing articulation agreements for transfer courses, attention should be given to the possibility of providing students with a degree planning tool that can be applied between cooperating institutions. Should a planning tool would allow students to plan for a degree when considering course offerings from multiple institutions.
3. The institutions' SIS will serve as systems of record for student matriculation, registration and academic records, tuition calculation and billing, and financial aid for the student's home institution.
4. As the program plan for expansion of distance education is further defined, consideration will be given to providing common student service functions for non-degree students and non-credit programs. These functions would include registration and billing.

Other Technology Related Recommendations

1. Consider joining the IMS Consortium in developing interoperability standards for course management systems and other online components.
2. Develop guidelines that would minimize the cost of conversion of course content between systems.

Recommended Short Term Next Steps

1.

Determine the appropriate forums for coordinating future work.

2. Proceed with developing the recommended RFP's for software and hardware. These RFP's would lead to awarding State-wide contracts to a small number of winning vendors. Institutions would be allowed to purchase software and hardware off of the price agreements. Volume discounts and costs savings should be realized through aggregated, State-wide purchases. We will need a fuller understanding of program objectives and specifications before the RFP's can be completed.
3. Determine the best strategic alignment of higher education with the new State portal. Make this a key item for the CCHE CIO Council and the new DECC.

Funding Requirements

Without more definition of program goals and objectives, specific funding requirements cannot be provided at this time for technology components beyond the common catalog. Unit costs have been identified in each section where appropriate. This will be useful in future work.

The finance taskforce has developed a high-level funding model that addresses the costs of new technology investments or support costs.

Common Platform Taskforce Participants

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- Patrick Burns, Director of Academic Computing and Network Services, Colorado State University
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COMMON PLATFORM TASKFORCE REPORT
Course Management Systems (CMS) Subgroup Recommendations

Introduction

CMS's, or LMS's (Learning Management Systems) as they are sometimes called, are software programs and information systems designed to assist teachers and administrators with the delivery of online education. While products in this category vary widely, they typically are used to organize and present course content, provide communications for student-faculty and student-student interaction, and offer a variety of course

management tools such as calendars and gradebooks. Most higher education institutions use at least one CMS, some use several. They are used to both supplement on-campus classes and as part of distance education delivery systems. Almost all products now use a Web-browser as its user interface.

This product category includes many new vendors and products and is growing and changing very fast. The Gartner Group has identified over 100 vendors (C. Aldrich, Research Note Com-11-6673). Some changes of note are the following:

1. Most educationally oriented CMS's started as "stand-alone" applications with few connections to existing campus information systems or electronic content (e.g., CD-ROM, e-books, and electronic versions of textbooks, course guides and test banks). As this product category has developed, vendors have adopted strategies to link their products to existing campus information systems and are developing partnerships with content publishers to develop academic material that can be imported into and managed by the CMS. Most CMS vendors are also developing or partnering with developers of campus "portals" (discussed elsewhere in this document) and in those cases CMSs become but one integrated part of a much larger Web-based campus information system used by all students, faculty, staff and even alumni.
2. Revenue models employed by these vendors are becoming more complex, and some offer multiple pricing schemes. One-time licensing, annual licensing fees, ASP models, transaction fees, and even advertising revenue models are appearing, sometimes offered the same vendor.
3. Expansion of product lines and services: Single products are being developed into multiple or tiered products differentiated by features, capacity, ability to be customized and price. Many vendors are also expanding the range of services they offer in support of CMS, and in some cases unbundling previously bundled services so that institutions can select those they need. Services offered cover a wide range, including Web-hosting, training, custom software programming, planning, evaluation, marketing, 24/7 help desk, and course developing services.

Purpose

The purpose of this report is to answer the following questions in light of our understanding of role CMS can play in improving distributed and online distance education.

1. Should CMS's be part of a common state platform, cooperative platforms, or institutional platforms?
2. Should an RFP be issued for the purchase of CMS(s) by public higher education institutions?
3. Should any "standards" be adopted regarding the use of CMS's by public institutions of higher education?
4. Are there other state actions that could be taken regarding CMS's to improve the efficient and effective use of these tools in online education?

Discussion

The recommendations we make in this report rest in part on our firm belief that course management systems are valuable but immature technologies developed within an industry that is facing great change and likely consolidation within the next few years. None of these products

has emerged as a standard, none fits every instructional need, their product development cycles are often shorter than our decision timelines, and with each new product release they continue to add functionality and leapfrog their competitors. Gartner finds that because of this shifting product field "the useful life of any LMS purchase is, in most cases, only two years." (C. Aldrich, Research Note Com-11-6673). Recommendation 1 (below) follows from our belief that at this point in time it seems necessary and prudent to permit individual institutions to continue to test, pilot, and deploy products, monitor the software standards that emerge, and allow larger market forces to bring greater clarity to this product category. During this volatile period, an RFP to establish more favorable pricing for all CMS products seems to make the most sense, and where it is possible to aggregate the purchasing power of the higher education community it could benefit institutions

We also considered the argument that making a CMS part of the common platform would provide a common interface that would be easier for students to use. It is our belief that this virtue is not as important as might first appear. Students currently use the Web for many purposes and have learned to navigate through many different interfaces. Moreover, current trends in both interface development and instructional design emphasize the value of interfaces that the user or instructor can customize to their individual preferences and purposes over the value of a single uniform interface. In fact, almost every CMS vender is promising to give the instructor and/or user greater control over the "look and feel" of their CMS product in the future. In those circumstances, creating a uniform user interface on a state-wide basis would face significant technological difficulties and likely user resistance if it were attempted.

Recommendations

Our answers to the questions we posed in the purpose statement above are summarized in these recommendations .

1. A single
   for the existence of our taskforce we believe it is important that we begin our recommendations with this unequivocal and unanimous recommendation. Given the diversity of higher education in Colorado and the subsequent variety in administrative support systems, selecting a CMS that integrates and expands services in the most effective way is vital. It is more important that a CMS integrates with the information systems on the home campus than it is that different institutions use the same CMS.
2. An RFP should be issued to solicit price bids for the major categories of CMS products and services. We recognize that individual institutions are often able to negotiate more favorable prices than those found in state agreements of this kind (and may still do so), and that the cost of issuing the RFP can exceed cost savings. However, we believe an RFP would lower the ceiling price any public institution would have to pay, will enable the state to exert some influence on features and services we believe these products should offer, and on balance an RFP would stand a reasonable chance of reducing costs.

   The RFP should include:

- Developmental Features
- Instructor Tools
- Instructional Features
- Student Features

- Administrator tools
- Administrative Features
- Technical Support
- Software Costs
- Hardware Requirements

3. An inter-institutional taskforce should be established to evaluate current national initiatives to develop technical standards for producing instructional materials ("objects") that could be used in any standards-compliant CMS. This taskforce should report to CCHE's Distance Education and CIO committees on the status of these standards and whether the adoption of any would encourage sharing of course content and reduce course development costs. Another challenge to be address by this taskforce and/or other groups will be the fair use and sharing of intellectual property. Although case law is just now being developed, UCITA, the Uniform Computer Information Transactions Act, DMCA, the Digital Millennium Copyright Act, ECPA, the Electronic Communications Privacy Act; have all been updated or revised with laws impacting use and distribution of instructional materials such as objects.
4. Proactive and cooperative steps should be taken to help campuses prepare for emerging developments in CMS and the delivery of online education. These include:

a. Analysis of and recommendations for the integration of CMS with campus information systems. The full usefulness and functionality of CMS will be significantly effected by their ability to integrate with other campus information systems. Cooperation on this issue among institutions that use the same CMS and or student information systems should be able to bring resources to bear on the problem beyond those of any single institution.
b. Experimentation with shared administration, faculty training, and support services among institutions that use the same CMS, or among institutions within the same governing board should help determine what eventual advantages, if any, can be gained by providing CMS through Cooperative Platforms rather than Institutional Platforms.

Both CMS/Campus Information System Integration, and the evaluation of the effectiveness and efficiency of Cooperative Platforms could be advanced by a state funded RFP for groups of institutions to propose such cooperative initiatives.

COMMON PLATFORM TASKFORCE REPORT
Web Authoring Tools Subgroup Recommendations

Introduction

New technologies are allowing faculty to develop, assemble, and deliver course content in ways not imagined just a few short years ago. The desire to create a course which draws upon the best materials for a specific set of topics and assemble and deliver it in a customized way - suitable to the style of a given instructor *and* the needs of his or her individual students - has the potential to be realized with these new technologies. In the past, supplemental course materials were typically limited to textbooks, workbooks, and other forms of material produced by publishers. These materials were typically edited and peer reviewed long before publication. Courses were often organized around a specific

.extbook. To develop a given course, a faculty member might select a textbook from a set of those available which cover the topic, and supplement it with other appropriate material, much of which might be developed by the instructor.

While there is increasing availability of "online content," much of it is not modularized in ways that are useful to assemble into customized course content, little has been edited by someone other than the author and most has not been peer reviewed. There is a lack of this type of content material, although some efforts such as the Merlot project are underway. In addition, technological proficiency varies widely among faculty and some student populations. Existing technologies are evolving rapidly and new technologies are even replacing recently implemented technology and creating yet more choices. Further complicating the picture is a lack of clarity and understanding with respect to intellectual property rights and management. These issues, plus the desire of faculty to have exactly the right resource material available for their students, create an understandable concern among teaching professionals. Many therefore conclude that they need to personally create, or oversee the development of, content for technology-based delivery. Sometimes this is to assure quality, but other times it is because the appropriate content doesn't exist.

Since faculty, and those who help them assemble resource materials and content, will be increasingly developing resource modules and content for the Web and other technology-based delivery methods, the members of the Web authoring subgroup believe it is appropriate to identify a suite of software tools for Web authoring. These tools could be used by faculty (and instructional support staff involved in distance-delivered and technology-enhanced courses), to create or adapt course material and content. The general recommendations of the subgroup are as follows:

- CCHE should investigate the feasibility and desirability of establishing a state price agreement, (or price agreements exclusively for higher or all education), for a suite of software tools for Web page authoring, graphics (including photographic editing and authoring) and video and audio. More than one software tool of each type should be included in the price agreement to accommodate different feature sets and levels of need and expertise.
- Financial and training incentives should be developed and implemented for distance education faculty that will enable them to use the recommended software tools that become part of the "common platform."
- CCHE should coordinate a Web authoring user group forum that would allow application users and technical support professionals to assemble on a regular basis to discuss common problems and share common solutions. It may also be appropriate to lead the formation and coordination of other affinity groups related to distance delivered and technology enhanced offerings.
- The development and operation of a repository for digital course modules and materials should be studied, and funded and implemented, if appropriate, to facilitate the sharing of digital content among faculty and across institutions within Colorado.

Price Agreements And Potential Software Tools

Mandatory use of specific software applications is not appropriate but price agreements can be used to encourage faculty to migrate toward a standard set of protocols and applications. The authoring tools subgroup recommends that the software applications listed in the table below be considered for inclusion in a state price agreement. Since some of these applications continue to evolve rapidly, this list should be reviewed at least annually, and price agreements should be flexible enough to accommodate necessary changes.

Product	[1] Anticipated Use	List/ Unit	Curr Avail Best / Educ $ per Unit	[3] Annual Cost of Ownership per Unit	Additional Discounting?
Adobe Photoshop	Medium	$609	$299	High	Probable
Adobe Illustrator	Medium	$399	$ 99	Moderate	Probable
Adobe Pagemaker	Medium	$499	$289	High	Probable
Adobe Acrobat	High	$249	$ 99	Moderate	Probable
Adobe Publishing Collection (combo of above 4 products)		$999	$499	High	Probable
Adobe Premiere	Low	$549	$349	High	Maybe
Macromedia Dreamweaver	High	$299	$ 75	Moderate	Maybe
Macromedia Fireworks	Medium	$199	$ 75	Moderate	Maybe
Dreamweaver Fireworks Studio (combo of above 2 products)			$149	Moderate	Maybe
Dreamweaver Web Studio (Flash, Dreamweaver, Fireworks, Freehand)			$200	Moderate	
Macromedia CourseBuilder (Dreamweaver add on)	High		$ 69	Moderate	Maybe
Macromedia Flash	Medium	$399	$ 99	High	Maybe
Macromedia Director	Low	$699	$349	High	Maybe
Microsoft Frontpage	High	$150	$28.59	High	Unlikely[2]
Microsoft PhotoDraw	High	$110	$21.78	High	Unlikely[2]
Microsoft Frontpage w PhotoDraw		$200	$50.37	High	Unlikely[2]
Netscape Composer	High	Free	Free	Low	N/A (Free)

Quicktime Pro	Medium	$ 30	$ 30	Moderate	Unlikely
Real Producer	Low	$149		High	Maybe
Apple Final Cut Pro	Low	$999	$499	High	Unlikely
Apple imovie	Low	$ 49		Moderate	Unlikely

[1] Low = probably < 200 units statewide; Medium = probably 500 – 1200 units; High = probably > 1200 units

[2] State price agreement already exists (Microsoft Select); Other higher education agreements possible

[3] Cost of ownership range based mostly on type and complexity of product.

These tools were identified based on the following criteria:

- They represent *de facto* standards in the sense that they are products most commonly used by both instructional technology support staff and end users to develop digital content components at the subgroups' institutions. A more thorough discussion should occur prior to issuing any RFP.
- They require a range of prerequisite knowledge from little or none to extensive;
- They represent a tradeoff between ease of use and capabilities.
- They represent a range of intended uses from simple Web page creation to multimedia graphics, animation, photography, audio and video.
- Most (though not all) are platform independent in the sense that versions are available for both Mac and Windows-based systems. UNIX users have fewer choices, but we believe this is not currently a major issue for most distance education faculty.

It should be noted that there might be significant valid technical concerns related to supporting some of the tools on the list. Some are highly bandwidth intensive, others perform better with various server platforms and network operating systems, and some require that extensive training and technical assistance be provided. Thus, the need for flexibility at the institutional level is extremely important. Furthermore, it is important to note that other products may offer different feature sets more applicable to certain disciplines.

Incentives, User Groups, Repository

We recommend the following, regardless of what software might be included in a price agreement:

1. Establish a state purchasing price agreement or other suitable contractual arrangement with authoring software vendors, based on a survey of estimated usage levels from all higher education (and possibly K-12), institutions in Colorado. Education pricing should be sought separate from state agency pricing. Provide a financial incentive in the form of a subsidy by funding a significant fraction (25% or 33%) of the cost of the software if purchased through the price agreement. Recognize that institutions will be incurring increased support costs at a rate far exceeding the cost of software acquisition. Provide institutional flexibility. Allow the central IT provider at each institution to identify a subset of the list that they will support based on their own assessments of technological impacts (e.g. to the institution's network

and Web server systems), and their ability to provide technical and instructional support to application users. Expect and be prepared to support institutional requests for additional funding for additional support staff.

2. Work with the distance education providers and appropriate IT organizations at each institution to create statewide training programs and user forums for the selected authoring tools.
3. Sponsor a semiannual Web Authoring user group conference that would include presentations about Web authoring experiences, and facilitate discussions of common problems and sharing of common solutions. The user group conference could also include the authoring tool training suggested above, and provide an opportunity for users and technical support professionals to revisit the recommended software list and provide input for its evolution.
4. Create a process through which statewide participation in projects such as Merlot are considered and adopted if appropriate. It is important that academic faculty from a range of institutions be involved in, and take ownership for, decisions to participate in such projects.
5. Sponsor the development and operation of an online repository for digital content, modules, graphic and visual elements, and audio components in formats supported by the Web authoring components. The repository would be used by faculty at all institutions for both distance delivered and on-campus courses.

a. Create incentive programs for faculty and institutions - through intellectual property policies and management, and other means - to develop components for, and contribute them to, the repository.
b. Have faculty lead the policy aspects of the repository related to the contribution of materials.
c. License content from other sources where appropriate to make available in the repository.
d. Encourage faculty and institutions to use content from the repository.

COMMON PLATFORM TASKFORCE REPORT
Turn-Key Services Subgroup Recommendations

Another alternative for providing distance education would be to contract with a vendor for turn-key distance education services. [Major contributions by Rowe, A., 2000 Draft RFP evaluation matrix, npublished document, Metropolitan State College of Denver.] In fact, Colorado institutions currently spend approximately $1.2 million a year on these services as is shown in the following table prepared by CCHE summarizing data collected from the institutions for Academic Year 1999-2000:

DISTANCE EDUCATION OUTSOURCING
AY 99/00

TOTALS	Students = 12,040	$1,298,290
e-College	**6,020**	**$592,080**
All CCs	3,804	$218,240
UCD CU Online	3,190	$256,480
UCHSC/Nontrad PharmD	218	$17,440
CU Independent Learning B2	49	$3,920
CSM		$21,000
UNC	1,875	$75,000
JonesKnowledge.com (e-education)	**5,263**	**$536,952**
Arapahoe Community College		$21,935
UCHSC/SON Informatics	56	$1,960
UCHSC/Pharm Cont. Ed.		$3,000
UCCS/B-School MBA	544	$281,552
Fort Lewis	4,276	$27,045
Metropolitan State College of Denv	387	$201,460
WestNet	**757**	**$71,915**
Arapahoe Community College	757	$71,915
EMBANET Corporation		**$52,743**
CSU/B-School		$52,743
WebCT		**$17,000**
FRCC, PCC, RRCC		$9,000
UCHSC/SON Informatics		$3,000
CSU Instructional Services		$3,000
CSU/Vet. Med		$2,000
Blackboard, Inc.		**$15,600**
Arapahoe & Pikes Peak CC		$9,600
UCD CU Online		$4,500
USC		$1,500
Independent Consultant		**$12,000**
UCHSC/PharmD		$12,000

The following suggests criteria for any Request for Proposal (RFP) for such turnkey services. The list is not exhaustive, but does help illustrate the complexity of providing such services.

Learner

These criteria should be evaluated in three dimensions: reliability, availability, and response time.

- Access to course material online
- Help Desk Service: by phone, by email, and online
- Exchanging Email: with instructor, with class, with sub-group of class, with other learners outside the class.
- Posting and receiving threaded discussion messages (text, voice, and video): with instructor, with class, with sub-group of class, with other learners outside the class.

- Posting and receiving chat messages (text, voice, and video): with instructor, with class, with sub-group of class, with other learners outside the class.
- Access class standing online.
- Receive automated remedial feedback to tests and exercises online

Vendor

Determine the richness of support.

- Years of experience
- Hardware redundancy
- Network redundancy
- Fiscal stability
- Vision and ability to execute vision
- Staffing: network developers, support consultants
- System upgrades: frequency, predictability, and level of disruption
- Documentation (free or fee; online or in print): for students, for faculty, for developers, for information technology support staff
- Offers development tools: Win98, WinNT, W2K, Linux, Mac OS
- Course development services
- Course conversion services
- Training (online, in person, or hard copy): students, faculty, designers, course developers, administrators
- Statistical analysis of grades
- Enrollment tools
- Course calendar
- Glossary
- Faculty profiles (text, image, audio, video)
- Student profiles (text, image, audio, video)
- Reporting services
- Disaster Recovery procedures

Course Developers

Support tools for the following

- Text
- Animation
- Video

- Audio
- Graphics
- Navigation between course elements
- Collaboration
- Tutorials

Costing

The Metropolitan State College of Denver pays the following fees (approximate) for a subset of the services listed above.

- $35 per student
- $500 for the licensing fee for a course
- $800 to take teacher input and put the course online
- $100 per hour to make custom changes to a course

COMMON PLATFORM TASKFORCE REPORT
Advanced Technology Servers

Background

This section addresses components of the common framework that provide advanced technology. Advanced technology should be conceptualized in a relative sense, compared to the current state of learning technology that is widely deployed at that time, and therefore is a "moving target." Mostly "early adopters" use advanced technology. Current examples of advanced technology are 1) streaming media servers, 2) servers that are used to deliver delayed-video, 3) high-resolution video conferencing devices, etc.

Advanced technology will likely play an increasingly prominent role in the delivery of distance education, as it can

- Improve the quality of learning
- Engage students
- Meet the increasing expectations of students for access to advanced technology, and
- Increase our competitiveness relative to others that do not deploy advanced technology (this is particularly important because our infrastructure is generally excellent, providing a competitive advantage to public institutions of higher education in the state)

Given the above positive attributes, deployment and effective utilization of advanced technology may be a crucial strategy to attract more students into our distance learning programs. Indeed, it is these additional enrollments that are necessary to provide the increased revenue to fund central elements of the common framework.

Standards, Best Business Practices And TCO

The role of standards is very important when implementing any technology, but are especially important when implementing advanced technology. First, low-level, well-recognized standards, such as TCP/IP for transport, standard operating systems, etc., should be absolute and observed strictly. Higher-level standards, such as at the level of the software application, are recommended and should be observed whenever possible.

Best business practices for advanced technologies should also be followed. These include making the servers "bulletproof," redundancy, RADI disk drives, and implementing advanced technology in a partitioned manner, separately from other technologies, to provide essential management features. This latter aspect deserves discussion that will be framed in the context of a streaming media server. It is desirable to deploy an entirely separate server and associated storage for streaming media as this will allow the resources used for this purpose to be tracked unambiguously. In particular, this allows network traffic to be easily and accurately metered at the switched port to which the server is connected. It allows the use of storage to be assessed unambiguously. It also allows the growth rate of usage to be tracked and projected for planning purposes. Finally, as advanced technologies are often not mature, it is prudent to deploy them separately so that problems with them will exert a minimum influence on the production environment.

Finally, it is often the case that other initiatives may be synergistic with the deployment of advanced technologies. For example, streaming technology requires high-quality networking, and this is synergistic with the Front Range GigaPoP and the state Multi-purpose Network (MNT). Such synergies and the opportunities they provide should be evaluated in TCO considerations, as they have implementation, support and budget ramifications.

Typical Phases Of Implementation Of New Technology

The phases of implementation for advanced technology are typically as follows. Advanced technology is generally deployed on an individual campus to meet the needs of the early adopters on the campus. In the early phases of technology, significant support services for both the technology and the users are typically required. Such support is best accomplished in a face-to-face venue, as dialogue is usually required to isolate, identify and approach the problems. As the technology matures and it becomes understood how much support is required in the steady state, then the technology may be able to be deployed centrally, i.e. remote from the users. Central deployment is an attractive alternative at the state level in that it provides the opportunity for sites to explore and use the technology with a minimum of resources. Indeed, this may be the best alternative for some smaller sites, even in the steady state, as such aggregation offers economy of scale and provides "critical mass" when it otherwise might not exist. Alternatively, "critical mass" may also exist on individual campuses, with deployment on the individual campus being the best alternative, permitting closer contact with users while still maintaining reasonable economies of scale. This, it is likely that both deployment models will best serve the needs of the state to meet the diverse needs that exist in higher education.

Issues

Many issues with the deployment of advanced technology exist. Some of these issues are enumerated below. Specific examples are provided in

the context of a streaming media server.

1. Need consensus from a working group – Whether deployment is on an individual campus or central, the decision to deploy advanced technology should only be done after a thorough investigation of options and alternatives has occurred. In most cases, this will be accomplished by a working group of users and technical support personnel.
2. Infrastructure – Advanced technology needs to be supported with appropriate infrastructure. Infrastructure requirements often include redundant electrical power, UPS, a high-speed network connection, redundant servers (especially as users come increasingly to rely on the technology in a production environment), etc.
3. Quality versus quantity – It is often useful to address the issue of quality versus quantity. Stated otherwise, are a small number of high-quality items preferred over a larger number of lower quality items? Often the answer is "all of the above." In the case of a streaming media server, are multiple simultaneous streams of media at various qualities needed to be able to provide streaming media availability to all locations? An emerging consensus is that three qualities of output for streaming media are desirable for every content item: very high quality (e.g. MPEG-2 main profile, high spatial and temporal resolution, large picture) for access via a high-speed network (LAN or

   connected via a medium-speed network (medium-speed WAN, e.g. T-1), and low quality (MPEG-4, low spatial and temporal resolution, small picture). As technology evolves and individuals become connected at higher speeds, these specifications will evolve.
4. Other technologies – Always an issue is how the advanced technology compares with existing technologies, as existing technologies serve to establish users' expectations. In the case of streaming media, for example, what are the quality issues of streaming media on demand verses broadcast video? What is good enough? What is not?
5. Support – This is perhaps the most significant issue of all, as technological environments have grown under the funding model of "one-time costs," where new technology is purchased, but no additional personnel are planned to support the new technology. Indeed, in some cases it is worse than this, as resources are actually declining, requiring technologists to do "more with less." This is exacerbated in that modern technology is very difficult to "glue together" to achieve the high-speed end to end performance that users expect, requiring more support than ever before. Numerous examples arise in the case of streaming media. Who trains and supports the faculty to implement streaming

   problems? Finally, the massive amount of support required prevents us from making any recommendation for shared central services, unless and until there are central support services to buttress central hardware and software.
6. Funding model – This applies more to funding ongoing costs than one-time costs. Steady-state costs should be assessed when deploying new technology. Unfortunately, many of the ongoing costs are unknown and only determined approximately during the trial (this is a good reason for conducting a well-defined pilot project, with the determination of ongoing support and costs as an outcome of the pilot project). In the case of a streaming media server, typical questions are several (many of these questions are embedded in the funding model for the support issues in item 5 above). How will the production of high quality streaming media be funded? How often will the hardware and software require update, and at what cost? How will faculty be rewarded financially for their efforts?
7. Legal issues – Legal issues also exist. For example, who owns, operates and maintains the application, including copyright issues? Is there client software required, that must be licensed? If so, can those licenses be enveloped under a site license, or is this an issue as those computers are owned by others and not the University?

Representative Example – Costs For A Streaming Media Server

To provide perspective, the one-time and ongoing costs of Cisco's IPTV streaming media server, purchased in June 2000, are provided below. Note that these are based upon our very limited experience with this product.

1. Capitalization costs - $70,000. We estimate that this server will have a two-year lifetime before it requires replacement.
2. Annual Maintenance - $3,300 per year for software maintenance. Note that this does not include the cost of hardware maintenance, which was not purchased.
3. Storage costs – approximately $120 per hour of material at high quality. This is in contrast to about $1.20 for the cost of a video cassette tape. Note the factor of 100!
4. Support staff – approximately $150,000. Four FTE's are dedicated part-time to this effort, each with management overhead. Initially, these 4 FTE will support less than a dozen faculty who will experiment with this technology. At this time, we have little idea what long-term support will be required, but are relatively certain that significant support will be required for a small number of users, due to the intensive nature of interactions required.

Recommendations

A statewide working group should be formed to address the issue of shared central services. This group, as a first assignment, should consider this document, and make appropriate changes in it. The second task for this group might be to address the possibility of some shared technology specifically to support distance learning. However, as stated above, "the massive amount of support required prevents us from making any recommendation for shared central services, unless and until there are central support services to buttress central hardware and software." In this light, perhaps the first task would be to form a central, statewide group to address support services, both central and local support services.

COMMON CATALOG TASKFORCE REPORT
A Common Catalog Schedule for Colorado Online Education

Vision: CCHE/CIO group intends to develop, deploy and support a Web-site providing a common catalog/schedule of online course offerings of the 28 Colorado institutions of higher education. [Such a catalog exists at www.rlegu.org, serving 24 research universities across the US. Others exist in Wisconsin and California. Useful, but not particularly friendly, www.gnacademy.org maintains a site, as does www.petersons.com. See also, www.colorado.edu/cewww and www.cuonline.edu for examples of database-served catalogs.] Such a Web-site would allow persons who wish to register for or to find more information on educational opportunities available via the World Wide Web. This will create a central source of access to the information, the courses and the student services (registration, advising, admission, bookstore, library, etc.) available at the host institutions. The Web-site will serve the residents of Colorado and the rest of the world, putting Colorado online education "on the map."

Rationale: The rationale for such a project includes the collection of information regarding the availability of online instructional opportunities in a single location. Properly marketed, such a resource will increase public awareness of the large number of online instruction available at the 28 institutions of higher education in Colorado, create a resource for current and future Colorado students so that they can locate learning

opportunities to increase the range of choices available for meeting their goals, create a similar resource for business, industry and government agencies for employee professional and continuing development, and create an accessible site for the 'global' populations of potential students. The opportunity for promoting Colorado education centrally should also increase awareness of and access for unserved and underserved persons in Colorado.

Specific benefits include making it easier to find online courses, providing information of programs and offerings, and describing enrollment processes and student services available. In addition, organizations would be able to find courses and programs suitable for their corporate training needs and facilitate the creation of customized programs to meet training needs. The participating institutions will have a powerful marketing channel for their courses. Colorado will gain improved educational opportunities for the workforce and keep Colorado Online competitive.

Policy Recommendation

CCHE/CIO should contract with one or more institution(s) of higher learning to act as the coordinator for the project. Coordination will include methodology, design, testing, deployment and documentation. Contracted institution may also provide hosting.

Policy Issues

CCHE/CIO and the institutions should develop a funding plan for the ongoing maintenance of the Web-site/database. Institutional roles and expectations need to be defined. Institutional responses to Web site inquiries need to be defined. Help with technical and operational issues for institutional users and for students using site.

Common Catalog Taskforce Participants

- John Dunn, Director, Independent Learning Programs, University of Colorado at Boulder (Chair)
- Dave Makowski, Assistant VP University Management Systems, University of Colorado
- Tom Maher, Associate Professor, Vice Provost, Colorado State University
- Don Williamson, Vice President for Information Technologies, **Colorado Community College And Occupational Education System**

Budget for Common Catalog of Online Instruction for Colorado

FY 00/01	--	--	--
ITEM	CAPITAL	OPERATIONS	--
--	STATE	STATE	--

Server/Software	$ 50,000	--	--
Development	--	$ 40,000	--
Site Hosting	--	$ 25,000	--
Contingency	--	$ 10,000	--
Marketing	--	$ 55,500	--
Total	$ 50,000	$ 130,500	--
Grand Total	--	--	$180,500
FY 01/02	--	--	--
ITEM	CAPITAL	OPERATIONS	--
--	STATE	STATE	--
Server	--	--	--
Development	--	$ 20,000	--
Site Hosting	--	$ 42,000	--
Contingency	--	$ 10,000	--
Marketing	--	$ 63,825	--
Total	$ -	$ 135,825	--
Grand Total	--	--	$135,825
FY 02/03	--	--	--
ITEM	CAPITAL	OPERATIONS	--

--	STATE	STATE	--
Server	--	--	--
Development	$ 20,000	--	--
Site Hosting	--	$ 42,000	--
Contingency	--	$ 10,000	--
Marketing	--	$ 73,399	--
Total	$ 20,000	$ 125,399	--
Grand Total	--	--	$145,399

Budget assumptions

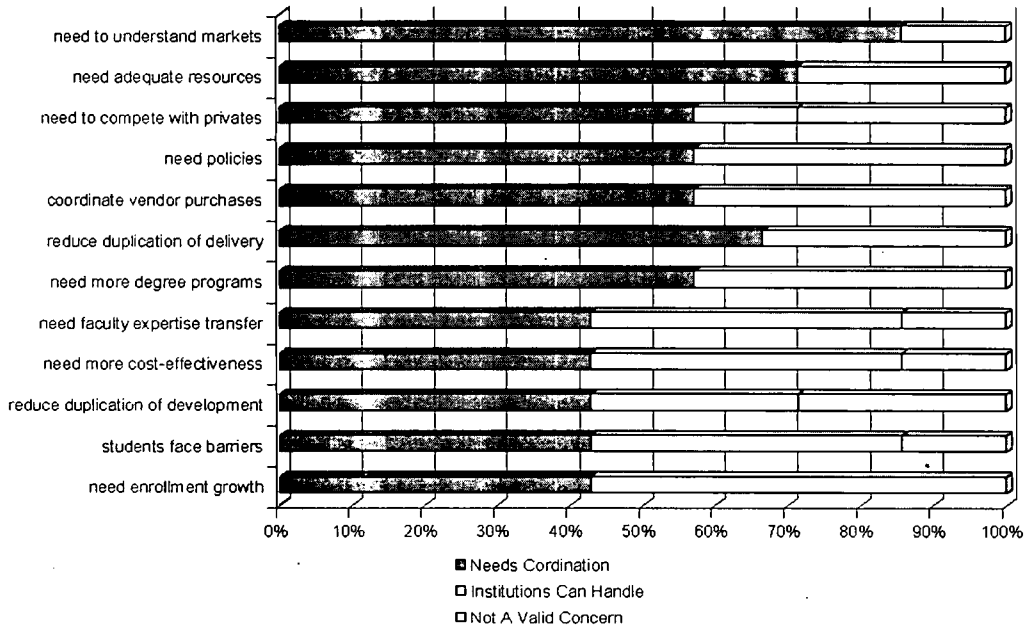
- Development costs may be shared with CIT
- Annual growth of enrollments (and institution contributions) calculated at 15 percent.
- Budget administered by DECC.
- The budget model assumed here may be replaced as a final budget model is developed.
- These are preliminary estimates. As more information is provided, the estimates might change.
- These estimates are for establishment and development of a catalog Web site. Additional services that might serve as a broader portal are likely to be more costly.
- CU would be willing to host the site in the beginning but may decide that it is in the best interest of site success to move the site to another entity for ongoing support.

ORGANIZATIONAL TASKFORCE REPORT

Need for Coordination of State Higher Education Distance Education Programs

The reapid growth of distance education offerings by Colorado institutions of higher education poses many challenges and opportunities. Some of these can be met though individual institutional initiative. Others, however, may better be addressed through the coordinated efforts of all institutions working together. However, the committee was unable to come to consensus regarding which problems belong to what level of coordination, or even in deciding whether certain issue areas even represent a valid problem to begin with.

Perceptions Regarding "What Problem Are We Fixing?"
Members of the Distance Educaton Task Force Organizational Subcommittee (N = 7)



Above is a table summarizing twelve potential problems and the committee consensus (or lack thereof) on each. To summarize, the only issue the committee is in true accord on is that we need a better understanding of the markets to be served by distance education. On all other issues,

there is, roughly, a balanced "difference of opinion" on whether a given issue is appropriately dealt with through coordination or separately by institutions. Finally, the issue of course duplication drew equal support as one needing collaboration and equal support questioning its underlying validity as a problem at all.

The possible "problems" to be solved are further defined below, including some observations and positions on each:

- Need to understand markets.
- Need for adequate resources. We don't have adequate resources (human and financial) to sustain distance education growth. This seems to be a problem for everybody. Coordination might help define the need in order to get the resources. Needs include for personnel and for development funds. Which is more critical?
- Need to compete with private providers. We can't compete with private, for-profit higher education distance education vendors.
- Need for statewide policies. In the view of CCHE, we lack statewide policies on distance education, including FTE. The distance education-just-another-mode principle says, FTE policy should be same as traditional. But FTE policy needs to be made explicit. This probably can be done through FTE policy review without special distance education coordination council.
- Need to coordinate vendor purchases. We're not driving the best bargain we can with distance education vendors by buying separately (CCHE). This seems to make sense to institutions if awards must be permissive, not mandatory. CCHE management prefers mandatory.
- Need to reduce duplication in course delivery.
- Need for more, or for specific, degree programs online. The HB99-1289 study reported a number of full degrees are offered or planned to be offered via distance education at the community colleges, UCB, UCD, UCHSC, and CSU. The trend toward focusing on the course requirements for entire degrees when offering distance education courses is expected to continue. However, there may be certain markets that are underserved with respect to the distance education option.
- Need for faculty technology expertise to transfer from distance to classroom setting. UCD and others now actively exploit the linkage.
- Need of more cost-effectiveness. Distance education may not be cost-effective the way we do it now (CCHE). It may take large enrollment base to do, larger than any one institution can provide. It will take capital to do as well, more than any one institution may be able to marshal.
- Need to reduce duplication in course development. There is duplication of course development (CCHE). The consensus of the subcommittee, and of the entire higher education taskforce, is that, duplication of higher education offerings is appropriately managed through the degree approval process. Since one of the principles adopted by the taskforce is that distance education and traditional education are but two modes of delivery governed by the same academic role, mission and standards, the decision to offer, or not to offer, a program via distance education is an institutional choice if the program has already been approved by CCHE. This argument extends to the general education core curriculum: if it falls within an institution's role and mission to offer general education courses at all, then that same role and mission would support the choice to offer these courses at a distance. However, there may be room for collaboration and coordination across institutions.
- Need to reduce barriers faced by students. Students have too many barriers to taking distance education courses from several Colorado institutions. This is a responsibility for each institution, but sharing in survey and study costs could avoid duplication of effort. Some of the barriers include:
- what's out there (we can do with common catalog or universal participation in national portals)

transfer and articulation (we can begin to address)

- tuition payment and financial aid (hard to do, institutions oppose trying this, but student's would benefit)
- student advocate (has been seen as a need in CCCOnline)
- Need to stimulate distance education enrollment. Enrollment is growing rapidly now. Metropolitan State College of Denver's enrollment grew by 50 percent from last year to this year. The HB99-1289 study found online enrollments grew (all institutions) by 39 percent from academic year 1998 to 1999.

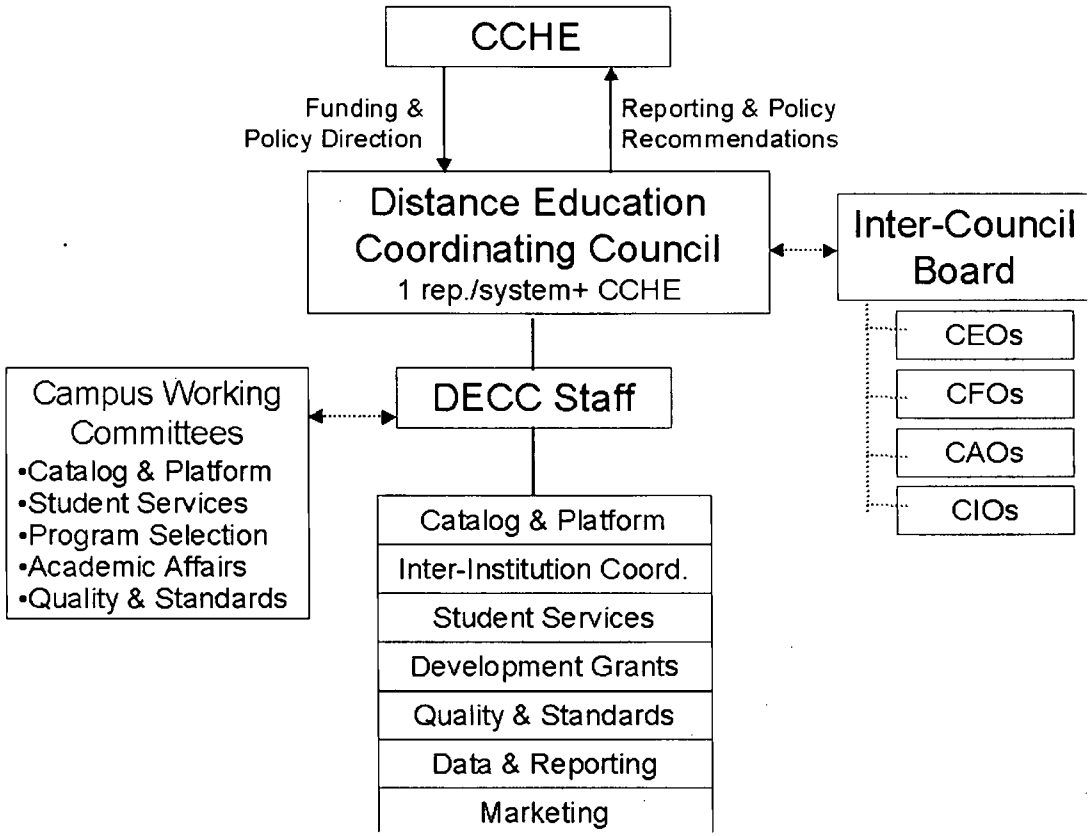
Purpose of DECC

The subcommittee developed the following purpose statement for a distributed education coordinating function:

Increase awareness, expand access, assure quality, and improve cost-effectiveness of certificate and degree programs offered via distance education by Colorado public institutions of higher education through statewide coordination of resources and services to competitively serve the needs of Colorado's citizens and economy.

Organizational Structure

A variety of organizational structures were examined. The preferred structure is one of a coordinating council, supported by staff responsible directly to the council. This council would be comprised of representatives from each governing board. It would integrate with the planning councils of CCHE by meeting periodically with specified representatives of its chief executive, financial, academic, and information councils. It would get working input from the campuses in a variety of areas through standing committees. The council would have a director and a small staff to carry out its assigned functions.



Organizational structures examined and rejected, including reasons why, are:

- A consortium with no staff. This is rejected because it is not practical to expect a consortium with no dedicated human resources to accomplish the set of responsibilities set forth for it.
- An office within CCHE with an advisory board. This is rejected because this arrangement lacks the neutrality of the preferred arrangement.
- An entity. This is perceived to require too much organizational overhead (authorization, possible incorporation, facilities, personnel, and financial) to be practical for the scope of responsibilities envisioned.

Responsibilities of DECC

There is a consensus of the subcommittee that the responsibilities of the DECC would include: managing a common course catalog and shared elements of a common platform, inter-institutional coordination on such things as course credit transferability and articulation, the provision of student services such as a student ombudsman, managing any grants for program development, establishing a shared set of quality assurance and technical standards, and compiling annual data and reports.

A more detailed list would include:

1. Catalog & Platform
   1.1. Catalog. May be in-sourced to an institution. Coordinate implementation
   1.2. Platform. Draft and issue RFPs for State Awards for distributed education systems and services
2. Inter-Institutional Coordination
   2.1.1. Credit transfer and articulation
   2.1.2. Tuition payment, credit or transfer (when taking extra classes at other institutions)
3. Student Services
   3.1. Student advocate and ombudsperson
   3.2. Market analyses
4. Development Grants
   4.1. Establish funding criteria
      4.1.1. Required. The proposed program
         4.1.1.1. Constitutes an entire degree, certificate, or general education program
         4.1.1.2. Provides for faculty training and support
         4.1.1.3. Includes quality assurance and control mechanisms
         4.1.1.4. Presents reasonable and definite milestones, timelines, and deliverables
         4.1.1.5. Complies with adopted technical standards and systems
         4.1.1.6. Intellectual property goes to institution in accordance with its own policy
      4.1.2. Preferred
         4.1.2.1. Fills a gap in existing program offerings from a statewide perspective
         4.1.2.2. Eliminates or consolidates program duplication
         4.1.2.3. Addresses workforce needs of Colorado
         4.1.2.4. Addresses a sizeable student market
         4.1.2.5. Broadens access to rural populations
         4.1.2.6. Has multi-institutional participation (course development and/or delivery)
         4.1.2.7. Explores cost-effective uses of technology
         4.1.2.8. Explores innovative and appropriate uses of technology
         4.1.2.9. Showcases competitive academic competency to global markets
         4.1.2.10. Enhances on-campus technology-enhanced delivery of program
         4.1.2.11. Involves 2-year to 4-year program articulation
   4.2 Solicit and award program development grants
      4.2.1. Contracting
      4.2.2. Contract monitoring

4.2.3. Acceptance of deliverables

5. Quality & Standards
   - 5.1. Training programs
   - 5.2. Support services
   - 5.3. Course development and delivery guidelines
   - 5.4. Course assessment guidelines
6. Data & Reporting
   - 6.1. Document distributed education activity in Colorado (from courses, to support, to evaluation)
   - 6.2. Serve as information clearinghouse, respond to requests for survey information
   - 6.3. Prepare annual report to DECC, CCHE and Legislature
     - 6.3.1. Accomplishments
     - 6.3.2. Student access
     - 6.3.3. Program quality
     - 6.3.4. Cost-effectiveness
     - 6.3.5. Policy recommendations
     - 6.3.6. Resource requirements (financial, human, technological)

Policy Recommendations

1. There should be a council formed, as described above.

Prioritized Funding Requirements

Initial 1.0 FTE funding of DECC staff through shared support from institutions given establishment of a central development fund. Subsequent staffing through a CCHE decision item for FY03. Interim support of the DECC through existing CCHE staff.

Organizational Taskforce Participants

- Jeff Richardson, Chief Information Officer, CCHE (Chair)
- Donna Bottenberg, Director of Continuing Education, UNC
- Andrew Breckel, Director, Extended Studies, CCHE
- Dave Clark, Academic Vice President, CSU System
- Mike Martin, Associate Vice President, CU System
- Vicky Seehusen, Vice President for Distance Education, CCOC
- Derek Wilson, CIO, CSM

FINANCIAL TASKFORCE REPORT

Introduction

From the CCHE distance education goals and strategies, the following questions emerge relative to the financial aspects of distance education provided by Colorado public institutions of higher education:

- Who should bear the costs of distance education?
- What funding mechanisms encourage cost effectiveness?
- What funding mechanisms encourage quality and innovation in distance education?

Potential funding sources include:

Existing Institutional Funds – Traditional education is funded primarily through student tuition/fees and state dollars. Under this model, low cost programs may subsidize higher cost programs. The model can be extended to distance education with each institution developing funding mechanisms from existing resources.

Specific Student Charges -- Where the ramp-up and/or on-going costs of distance education are higher than for traditional courses, differential tuition rates or specific fees may be assessed. The potential also exists for these incremental charges to be made due to market demand, even if actual costs are not higher.

New Dedicated State Funding -- New state funds (either General Fund or Capital Construction) could be dedicated to supporting distance education. We have concerns with both fund sources. With General Fund growth restricted by the six percent Arveschoug-Bird limitation, we are concerned that any separate allocation of funds would result in a direct reduction of General Fund campus support. Similarly the statutory restrictions on the use of state Capital Construction funds would seemingly limit the use of those dollars.

Other – Other funding sources include private gifts and contracts as well as federally funded grants and contracts. Campuses have already been successful in tapping into federal grant money to help develop online courses.

Cost Analyses

Before evaluating who should pay the costs of distance education and how funding mechanisms can encourage cost effectiveness and quality, a more fundamental question needs to be addressed: What are the costs of distance education? Unfortunately this is not easily answered.

On one hand, there is general agreement that distance education is simply a mode of instructional delivery, that is, a new tool to be used in delivering existing content, not a fundamentally new creation. On the other hand, distance education, particularly online instruction, is a significantly different tool with some unique characteristics that impact costs of instruction and make traditional cost analysis models

inadequate. For example:

- *In an online mode of communication, the faculty does not have the benefit of eye contact, or body language. This absence of traditional feedback necessitates more assignments and exercises to adequately evaluate outcomes.*

- *Teaching becomes more tutorial. Students have uninterrupted access to faculty and expect instantaneous responses. In the traditional classroom seven students may stay after for assistance; the faculty can answer the question(s), for all the students at one time. This becomes seven separate responses online. Overall, faculty investment of time has increased for any given course and traditional teaching loads are not feasible where faculty loads are exclusively online.*
- *Due to the additional attention received by students, class sizes must remain small. This reduces the average income per course section, which exacerbates the financial situation caused by increased faculty cost per student enrollment.*

- *Another cost of distance education is the cost to maintain system integrity. An example of this is the transmission of term papers. If a student transmits a contaminated paper the faculty must communicate to the student there is a problem. If the faculty opens the term paper with a virus the institution bears the cost of cleaning the system.*
- *Because distance education is new, compensation plans for course development have been put in place, not necessarily related to value or costs, but as a development incentive. The plans vary significantly from institution to institution and within colleges, schools and departments.*
- *Identification of faculty costs is difficult. Many faculty teach both online and traditional courses as part of their assigned load, yet sometimes-special stipends are offered in addition or as an overload.*
- *A final issue that is difficult to quantify is technological change. The rapidity of progress impacts both "restyling" of course content to use newer technologies and the hardware/software requirements of course developers and deliverers.*

- *Technology costs for development and delivery of online courses may be decentralized and difficult to identify.*

As distance education evolves, so to will the means of accounting for and analyzing costs. In the meantime what can be shown is a generalized comparison of online and traditional course costs:

	Online Courses	Traditional Courses
Content Development	Varies dramatically from being a requirement and/ or voluntary donation at no incremental cost to $5,000 per course. External grant funds are sometimes available.	Typically part of "load". No incremental costs.
Content Conversion for Distance Delivery	Incremental costs are estimated at $500 - $1,000. Actual costs are likely to be more if volunteered time is considered.	Not applicable. Miscellaneous materials costs considered immaterial.
Instructional Delivery / Faculty	Varies significantly by institution and discipline. Reasonably consistent with funding of a traditional course counterpart.	Varies significantly by institution and discipline.
Technology Infrastructure	Based on charges by outside vendors, the cost is between $900 and $2,400.	Although technology is used in traditional classrooms, the usage and costs vary significantly.
Technological Change	As distance education evolves, the cost of "restyling" course content frequently may be significant.	Traditional courses are also impacted by technological change, but to a lesser degree.

A recent cost analysis for one program at the University of Colorado – Denver (UCD) reflected similar costs for online and traditional courses ($12,401 vs. $12,846) but with significantly higher cost per student FTE for online courses due to smaller class sizes ($6,603 per online SFTE vs. $4,055 per traditional SFTE). Due to the additional attention required, course enrollment may remain smaller, perpetuating the greater per SFTE cost. It is not yet clear if the evolution of distance education will eventually allow for more efficient delivery methods. In addition, there are some indications that in other programs and institutions even the costs per course may be higher for online than for traditional.

Potential for Economies of Scale

Part of UCD's cost analysis was a review of areas for economies of scale and associated savings. Lower costs were garnered in licensing, but this element is a small percentage of the total cost of online courses. A 10% price break was achieved, but the cost of issuing the RFP was greater in total than the price break.

There are two types of price breaks:

1. **Choose from a list of vendors with state approvals, or**
2. **The use of one required vendor.**

Policy recommendations on this issue are included under the Common Platform discussion in the next section.

There are also other costs to be considered:

1. **Conversion costs.**
2. **Cost of retraining faculty to be able to use the new platform.**
3.
4. **Cost of new versions and upgrades and who makes and enforces decisions to upgrade.**

Current Funding Mechanisms

Currently institutions are funding distance education through a combination of existing institutional resources, federal grant opportunities and differentiated tuition and fees. The following table (next page) compares the student charges for online and traditional courses at selected institutions.

Policy Recommendations

Student Tuition and Fee Rates

Each institution has a different role and mission as well as different environmental characteristics and student demographics. Therefore, to effectively deliver instruction, each campus varies in its tuition and fee rates and policies. A particular tuition and fee structure that is very successful at one institution may be impractical or counterproductive at another institution.

These institutional differences need to continue to be respected in the alternative delivery of education. Campuses should be free to charge appropriate tuition and fees and set other policies (e.g., the application of a "window" of credit hours for a flat tuition rate) in the manner that best meets the needs of the students they are serving

Table I: 2000-01 Tuition and Fee Comparison - Online vs Traditional Delivery

Full-Time Undergraduate and Graduates Tuition and Mandatory Fees at 12 Credit Hours per Semester

Type	Level	Institution	Resident			Non-Resident		
			Tuition ($)	Fees ($)	Total T&F	Tuition ($)	Fees ($)	Total T&F
Online	Undergraduate	UCD	$ 1,149.00	$ 458.00	$ 1,607.00	$ 5,821.00	$ 458.00	$ 6,279.(
		MSCD	$ 883.80	$ 331.00	$ 1,214.80	$ 3,660.00	$ 331.00	$ 3,991.(
		ACC	$ 1,416.00	$ 9.25	$ 1,425.25	$ 1,416.00	$ 9.25	$ 1,425.2
		LCC	$ 1,416.00	$ 9.25	$ 1,425.25	$ 1,416.00	$ 9.25	$ 1,425.2
		MCC	$ 1,416.00	$ 9.25	$ 1,425.25	$ 1,416.00	$ 9.25	$ 1,425.2
		PPCC	$ 1,416.00	$ 9.25	$ 1,425.25	$ 1,416.00	$ 9.25	$ 1,425.2
	Graduate	UCD	$ 1,579.00	$ 458.00	$ 2,037.00	$ 6,371.00	$ 458.00	$ 6,829.(
Traditional	Undergraduate	UCD	$ 1,149.00	$ 400.40	$ 1,549.40	$ 5,821.00	$ 400.40	$ 6,221.4
		MSCD	$ 883.80	$ 228.16	$ 1,111.96	$ 3,660.00	$ 228.16	$ 3,888.1
		ACC	$ 693.00	$ 63.85	$ 756.85	$ 3,329.40	$ 63.85	$ 3,393.2
		LCC	$ 693.00	$ 143.15	$ 836.15	$ 2,663.40	$ 143.15	$ 2,806.5
		MCC	$ 693.00	$ 75.25	$ 768.25	$ 3,329.40	$ 75.25	$ 3,404.(
		PPCC	$ 693.00	$ 60.25	$ 753.25	$ 3,329.40	$ 60.25	$ 3,389.(
	Graduate	UCD	$ 1,579.00	$ 400.40	$ 1,979.40	$ 6,371.00	$ 400.40	$ 6,771.4
Difference (Online minus Traditional)	Undergraduate	UCD	$ -	$ 57.60	$ 57.60	$ -	$ 57.60	$ 57
		MSCD	$ -	$ 102.84	$ 102.84	$ -	$ 102.84	$ 102.
		ACC	$ 723.00	$ (54.60)	$ 668.40	$ (1,913.40)	$ (54.60)	$ (1,968.(
		LCC	$ 723.00	$ (133.90)	$ 589.10	$ (1,247.40)	$ (133.90)	$ (1,381.3
		MCC	$ 723.00	$ (66.00)	$ 657.00	$ (1,913.40)	$ (66.00)	$ (1,979.4
		PPCC	$ 723.00	$ (51.00)	$ 672.00	$ (1,913.40)	$ (51.00)	$ (1,964.4
	Graduate	UCD	$ -	$ 57.60	$ 57.60	$ -	$ 57.60	$ 57

Assumptions:

UCD -- This comparison assumes a student is taking ALL online courses. Students registering for only online courses pay a $100 per course fee, the Information Technology Fee and the Student Information System Fee. All other fees are waived.

MSCD -- This comparison assumes a student is taking ALL online courses. Students registering for only online courses pay a $23 per credit hour fee, the Information Technology Fee and the Student Registration Fee. All other fees are waived.

Community Colleges of Colorado-- This comparison assumes a student is taking ALL online courses. Students registering for only online courses pay the $9.25 registration fee and are subject to the course fee for designated high and medium cost courses. The course fee is not included in the fee amounts for both online and regular students because the fee amount is subject to the course mix taken by the student.

FTE Funding

The FTE Funding policy is a critical component for the successful delivery of online courses for the majority of Colorado college's and universities. Since the first online courses were offered in 1996 most schools sought advice from the CCHE on reporting those credit hours generated. CCHE sent out letters to campus officials instructing them to furnish course specific information and then report the credit hours for state funding. Later, CCHE discontinued the detailed separate reporting, but allowed colleges and universities the ability to continue reporting them as state funded resident instruction courses.

CCHE needs to clarify the FTE reimbursement policy for distance education courses. The current reimbursement policy seems to be a compilation of CCHE policy modified by two separate letters from CCHE staff. It appears as though campuses may be inconsistent in their interpretations of these separate documents. In reviewing the CCHE policy, it is important to note again that institutional flexibility remains important. Remember, distance education is simply a method of delivery; the State should support resident online learners in the same manner as they support resident classroom learners.

Specifically, some campuses may best serve their students by putting all distance education under the continuing education/"cash funded" umbrella, where FTE reimbursement is not an issue. However, for the majority of campuses where some or all online courses are best delivered within the "regular" academic structure - state funding is appropriate. In addition, the CCHE policy of not counting baccalaureate institutions' FTE delivered "off site"(with the exception of certain approved programs) is inconsistent with the CCHE policy of counting all resident FTE in distance education courses. Certainly, these two policies should be reconsidered together and made consistent if possible.

<u>Content Development</u>

One possibility under consideration is a competitive RFP process to select and award funding for new online content development by institutions. This would require a centralized funding pool, ostensibly from "new" money. However, given the state funding parameters, "new" money may be illusory. Identified below are four potential financing mechanisms for a centralized content development fund.

- **One-time central appropriation**
- **Dedicated Student Fee**
- **Sharing of new revenue**
- **Premium state FTE funding**

In addition, there are two financing mechanisms that institutions might use if content development continued to be decentralized.

- **Premium state FTE funding**
- **Individual institutional flexibility**

Centralized Funding

1. **A one-time state appropriation (source to be determined) for capitalizing a fund for competitive proposals from the institutions.**

- **Assuming a public policy interest in increasing distance education courses, then it is appropriate that the funding come from the State. However, given the limitations on State funds, there is the very real possibility that any dedicated State appropriations may**

effectively reduce the funds otherwise available to higher education. It is not clear that it is appropriate for the State to bear the cost of dedicated content development at the expense of unrestricted funding for higher education.
- Competitive proposals require institutional effort to prepare. The time spent on proposal preparation supplants time that could otherwise be spent on content development. Evaluation of proposals also requires personnel time at some overhead cost.
- The proposal process adds a level of review to course content development that could enhance the quality of distance education.

2. A dedicated student fee to build and/or maintain the fund for on-going proposals.

- Student fees place the cost burden directly on those who benefit. The drawback is that in some cases it may be in the public interest to have individuals who cannot afford the cost being beneficiaries of distance education.
- Competitive proposals require institutional effort to prepare. Proposal preparation supplants time that could otherwise be spent on content development. Evaluation of proposals also requires personnel time at some overhead cost.
- The proposal process adds a level of review to course content development that could enhance the quality of distance education.

3. Sharing new revenues from enrollments in distance education courses initiated with central development funds. A portion of these revenues would build and/or maintain the central fund.

- If an institution uses "new revenues" (tuition/fees and State funding) to finance a central content development fund, a combination of public funds and distance education student payments are supporting distance education. The "student charges" portion places the cost burden on the beneficiaries of distance education while the State funds subsidize the cost due to the public policy issues.
- Competitive proposals and calculation of surcharge require institutional effort to prepare. Proposal preparation supplants time that could otherwise be spent on content development and additional administrative burdens are an incremental cost. Evaluation of proposals also requires personnel time at some overhead cost.
- The proposal process adds a level of review to course content development that could enhance the quality of distance education.

4. A premium for FTE funding from the State for distance education enrollments, e.g., 1.2 times the typical FTE, with .2 going directly to build and/or maintain the fund for on-going proposals.

- Assuming a public policy interest in increasing distance education courses, then it is appropriate that the funding come from the State. However, given the limitations on state funds, this will effectively reduce the funds otherwise available to higher education. It is not clear that it is appropriate for the State to bear the cost of dedicated content development at the expense of unrestricted funding for higher education.
- Competitive proposals require institutional effort to prepare. The time spent on proposal preparation supplants time that could otherwise be spent on content development. Evaluation of proposals also requires personnel time at some overhead cost.

- **The proposal process adds a level of review to course content development that could enhance the quality of distance education. However, centralized evaluation standards can limit innovation and adaptation to specific needs at individual institutions.**

Decentralized Funding

5. **No central competitive proposals, premium FTE paid by the state directly to the institutions for content development.**

- **Assuming a public policy interest in increasing distance education courses, then it is appropriate that the funding come from the State. However, given the limitations on state funds, this will effectively reduce the funds otherwise available to higher education. It is not clear that it is appropriate for the State to bear the cost of dedicated content development at the expense of unrestricted funding for higher education. This has an advantage over the centralized approach in that the institution who generated the distance education FTE will be the beneficiaries of the State funding.**
- **If content development funding remains at the institutional level, time is not diverted from instruction and/or content development to prepare proposals. In addition the bureaucracy of proposal management and evaluation is avoided.**
- **If there are no centralized standards, content development can be more responsive to the unique needs of individual institutions**

competitive marketplace created by the common catalog; if one institution's course X is not of high quality, then students have easy access to course X elsewhere. In addition the "carrot" of premium FTE exerts upward pressure on quality.

6. **No central competitive proposals, development funded on an individual institution basis.**

- **If an institution uses existing dollars (tuition/fees and State funding) to finance a central content development fund, on-campus students are effectively supporting distance education. This may be of benefit to those whose schedule or situations are better**

number one.
- **If content development funding remains at the institutional level, time is not diverted from instruction and/or content development to prepare proposals. In addition the bureaucracy of proposal management and evaluation is avoided.**
- **If there are no centralized standards, content development can be more responsive to the unique needs of individual institutions**

competitive marketplace created by the common catalog; if one institution's course X is not of high quality, then students have easy access to course X elsewhere.

In summary, we recommend against a central fund for content development. It is not clear that this would benefit the state's distance education delivery and there are significant concerns with the financial impact to ongoing campus operations. In the event that a central fund is implemented, it should be done in such a way as to best maintain institutionally flexibility. A one-time state appropriation that has no impact on campus general funds would be such a mechanism. If there is also an associated requirement that the fund be maintained, and then each institution should be able to determine how it should finance its proportional share.

The entire recommendation was not unanimously supported. A minority viewpoint included concerns with:

- Incentives for institutions to use a common platform (courses developed with the fund may use this platform).
- by Metro, UCD, CCOC instead of being done separately, in triplicate).
- A means for exploring improvements in the cost-effectiveness of distance education (which may require large enrollments to amortize costs, enrollments larger than any one institution could marshal).
- A means for targeting certain degree programs of importance to the state (which individual institutions may not see as a priority).
- A means for assisting smaller institutions that lack discretionary resources to develop distance programs.
- Incentives for institutions to participate in a common registration and tuition payment system (programs developed with the fund may be asked to participate in this), thus providing greater service to the student.

Central Organization

If the governing boards CEOs support the concept of some type of statewide distance education coordinating body, we recommend a council staffed by an individual who reports to the governing boards. This would be similar to the higher education fiscal coordinator who reports to the CFOs.

Common Catalog

There are some benefits to a common catalog, which in effect creates a competitive marketplace for Colorado distance education. Market forces would put upward pressure on quality and downward pressure on prices as students have access to a wide variety of choices. This does not necessarily benefit individual institutions, but meets a public policy concern. The implementation costs could be borne by "new" state funding that does not negatively impact campus funding. The cost of ongoing operations is an issue for future discussion, perhaps by the governing boards' distance education coordinating body.

Common Platform

We concur with the direction taken by the Common Platform taskforce, that is, that institutions continue to have flexibility to use the technologies and services that best meet their needs and spreads risk in the mission-critical delivery of distance education. There are significant financial and reputational dangers with the selection of a single platform because this is an emerging industry with the inherent instability of a growth area. A single vendor in essence, places all our eggs in one basket.

Policy Issues

There are several policy issues that are significant to the distance education discussion, but were not practical to explore within the

timeframe of this taskforce.

Enrollment Growth on Campuses

Will distance education enrollment growth cannibalize the "bricks and mortar" students currently on campuses? At some institutions where there has been significant growth in distance education, the total FTE has not substantially increased, suggesting that distance education has been a substitute for traditional classroom education, rather than a complement. Although it is too soon to say, an important issue is the long-term impact of distance education on traditional campuses and building/facility requirements.

Financial Aid

There are two financial aid issues. The first is the feasibility and allowability of offering state and federal financial aid on a cumulative basis to a student taking courses from more than one Colorado institution. The second is avoiding abuse or misuse of financial aid by students taking courses at more than one Colorado institution.

1. How can students aggregate courses from different institutions to be able to meet the financial aid requirements of full-time student status? A student's budget and overall eligibility drop if their enrollment drops below full-time status. It is possible for one institution to be a "home institution" and count the other classes taken online at other institutions as part of the students' credit hours for determining full-time status and in how they offer the financial aid. This process requires modifications of the institutions computer systems in order to support these consortium agreements.
2. A potential problem exists in double counting of credit hours at multiple institutions. This requires additional administrative steps to ensure appropriate counting. This process would benefit students taking online courses, but there has been little incentive for colleges and universities to take these extraordinary steps to handle these situations.

Another long-term problem is that if an institution as a whole offers more than 50% of their courses online, they become ineligible for federal financial aid. To retain there federal eligibility, institutions must get an exemption (e.g., Western Governors University) or that it is a demonstration project (e.g., the Community Colleges Online Program).

Transferability of Credits

Another impediment to distance education is transferability of course credits to other institutions of higher education. There is little incentive for course transferability in general, but the situation is exacerbated in distance education, particularly with a common catalog. The potential exists to use funding mechanisms to encourage this. While transferability is clearly a desirable outcome, it is primarily an academic issue and funding mechanisms may be too blunt of a tool for such a delicate issue. What incentives are appropriate?

Premium State FTE Funding

Premium state funding for distance education FTE (e.g., at 1.2 times the normal rate) has been offered as a potential financing mechanism. This is possibly justifiable on the basis of higher costs. However, different programs at any given institution have always varied in cost. Is there a substantial public policy reason for an across-the-board premium? Is it appropriate to single out distance delivered courses for special consideration?

Summary

The financial advisory subcommittee has discussed a variety of issues related to the state's online education efforts. While online education represents a different method of delivery for postsecondary education, we believe it serves as a critical complement, though not necessarily a substitute, for classroom education. As a different method of delivery, distance education provides a variety of challenges for institutions and state policy makers.

We believe campus representatives are best able to address these challenges. To assist the campus representatives and facilitate statewide communications, a statewide advisory council could be established to consider the state's online efforts. This council could coordinate a needs assessment, and help develop the establishment of a statewide electronic course catalogue.

However, we do not believe the state would be well served with a centralized policy-making and grant making organization. Any organization of this type would require a commitment of significant state resources. If the state is already experiencing a significant annual increase in the online course enrollments, why should the state's financial resources be funneled through a central organization in order to defray the development costs of additional online education? Given the fact that the state's distance education efforts have recently increased at an annual percentage rate of 39 percent, we believe this evidences that many of the institutions are already responding to the demand of the consumers through offering improved access.

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It should be noted that the majority viewpoint has been presented and that not all committee members endorsed every recommendation.

References

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REPORT ON PRIVATIZATION OF DISTANCE EDUCATION TECHNIQUES AND TECHNOLOGIES

Introduction

This chapter addresses the issue of privatization with respect to the operation of distance education programs by public higher education institutions in Colorado. It is provided in response to HB 99-1289 Part VI, Section XVII, which requires an "examination of potential for increased use of privatization in obtaining and applying distance learning techniques and technologies by state institutions of higher education."

We examine six approaches to privatization, and for each, define what it is, provide examples, look at arguments for and against, and discuss the applicability of the scenario to statewide implementation. At the end of this chapter, we provide recommendations regarding distance education privatization. The six scenarios are:

1. Form enterprise structures
2. Form hybrid enterprise/state-funded structure
3. Contract out program delivery
4. Contract out technology support
5. License distance education software
6. License content

Scenarios

1. Form enterprise structures

What it is. This option segregates, statewide or by institution, distance programs into an entity organizationally distinct and independent from residential instruction programs. This entity could be an enterprise (as defined by Colorado Revised Statutes) or non- or for-profit corporation. In all cases, the new entity would operate more as a business, with its funding coming from revenues. As a corporation, it would be free of such public sector constraints as purchasing, personnel, and pricing.

Example. Several of Colorado's current distance education programs are operated by continuing education departments as institutional enterprises. Notable examples include the extended studies programs at CSU and UCB.

Argument for. This structure is especially appropriate to continuing education programs, where adult students are pursing professional certificates and degrees. For this population, there is a greater ability and willingness to pay market prices for educational services. This population has the maturity to learn at a distance. It has a great need for the "anytime anyplace" nature of distance education in fitting coursework into an adult lifestyle. Finally, many of the programs and courses of interest to this population have sufficient market pull to not require State support to assure they are offered.

Argument against. Application of this approach to all distance education programs (as opposed to specific, continuing education programs) violates two of our three guiding principles. It segregates distance education activity from the mainstream activities of a campus. Instead of treating distance education as integral to the institution, differing only in mode of delivery, it divorces the distance education program from the institution, its role and mission and academic environment. Further, it inhibits hybrid interaction between distance and on-campus use of technology, in violation of our second principle (to further the technology competencies of both faculty and students).

In loosing public funding (as required by these options), the program's ability to fulfill certain public needs is lost as well. For-profit institutions are good at addressing markets that have substantial size. But many markets in the public interest to support, for example, degree programs in health care, education, and liberal arts, may go unserved while for-profits "cherry pick" lucrative markets in business administration and information technology.

Applicability to statewide implementation. A statewide continuing education program employing distance education techniques for certain high-demand, professional development programs of study is certainly viable if those institutions who currently offer such programs would choose to collaborate and pool resources. Since these programs are cash funded, the State has little sway in policy in promoting such collaboration. The Colorado Institute of Technology may serve as stimulus (programmatic and financial) for such statewide collaboration.

2. Form hybrid enterprise/state-funded structure

What it is. In this scenario, an organization manages distance education on behalf of a group of institutions using their academic structure and teaching their students. The organization has no independent academic standing and the programs delivered are those offered by the participating institutions. The organization has no students of its own, all the students are enrolled directly with one of the participating institutions. Students are "pooled" together as classes are filled. (That is, a given course section will include a student cohort drawn from several of the participating institutions). The organization "borrows" faculty from its member institutions (to develop and deliver courses), and either pays the faculty directly (as over-load adjunct stipend) or pays the institution (to buy out a block of their time). This scenario requires that the participating institutions cross-list the organization's course list as their own, and therefore requires a common course numbering system. Because students register directly with the organization (to effect the cohorting), full articulation of student information systems between the organization and its member institutions is required.

Example. CCCOnline is the model for this scenario. Students matriculate in one of the participating community colleges. The colleges co-list the CCCOnline courses as their own. Students, when they enroll in one of these courses (through the CCCOnline registration Web site), specify their home college. Tuition and State FTE subsidy are paid to the home college. The home college keeps the State FTE

subsidy and approximately one-quarter of the tuition to defray the expenses of hosting the student. The remaining three-quarters of tuition is transferred to CCCOnline where it is used to pay G&A, the student's technology support service, and the faculty member (or reimburse his or her institution).

Argument for. This model substantially integrates distance and on-campus academic programs by the use of faculty and students drawn from the campus. Further, it integrates distance education programs across institutions by pooling students into classes, sharing faculty, and collaborating on program development. This results in potential economies of scale through centralized (a) program development, (b) course delivery, and (c) academic systems (registration, course platform, quality assurance and control, program planning, etc.).

Argument against. In the case of CCCOnline, all the collaborating institutions (colleges) are organized under one governing board. Hence, they share the same role and mission (being community colleges) and administrative structure (both organizational and technological). When this model is applied to several separate and independent institutions, difficulties arise with differing roles and missions, differing governance and administrative structures, and different academic, student, and financial information systems.

Applicability to statewide implementation. Can CCCOnline be extended statewide? The argument against this has been presented. When applied, this model pools content and students and hence removes any distinctions due to role and mission and institutional branding. Hence, its statewide applicability would be limited to those programs and courses where several institutions would agree to share a common role and mission with respect to these programs.

3. Contract out program delivery

What it is. This option some, or all, program delivery is contracted out to third party providers.

Example. The Rural Education Access Program (REAP) of CCHE serves as a prototype of this model. Here, rural two-year community colleges contract with four-year institutions to deliver certain bachelor-level degree programs to their students. Some REAP programs (e.g., criminal justice) are planned to be offered as distance education. As another example, CCCOnline contracts with certain colleges in Missouri and Kansas to offer them programs they cannot develop themselves. The list of possible program vendors is large, including probably most distance education enterprises in the country.

Argument for. This option makes a lot of sense when an institution needs to expand its program offerings to meet the needs of its market (for teachers, IT professionals, health care personnel, or prison personnel) but lacks the resources to do so by itself.

Argument against. When this strategy is applied to programs the institution does offer, however, this causes the artificial separation of programs by mode of delivery, and our first guiding principle is violated.

Applicability to statewide implementation. Arguably, in a state the size of Colorado, there is little educational content that is not offered by one of our institutions. This strategy appears most applicable on an intrastate basis within Colorado, where courses are shared among

institutions, as exemplified by the REAP model.

4. Contract out technology support

What it is. This model is typical of current practice: a distance education applications service provider (ASP) is engaged to provide the technology needed for the course. That technology and the course content run on the ASP's computers, accessed through the Internet. The technology provided usually bundles course management, course catalog, registration, tuition payment, library services, and 24 by 7 help desk. Instructional design and development services are optionally available.

Example. Colorado institutions spent about $1.2 million in FY1998-99 on e-learning ASP services, principally with eCollege and Jones. Of this expenditure, the bulk went to hosting courses (supporting the online class interactions) for about 15,000 students. Only a small percentage went to instructional design services.

Arguments for. The impetus for outsourcing to these vendors is to gain access to a suite of services (as listed above) when institutions find it difficult to adequately provide these in-house. The most difficult service to provide is 24 by 7 help. But Internet access and server resources can also be a challenge to smaller institutions.

Arguments against.

1. These services, developed to serve the distant student, are not optimized for the traditional classroom. This is changing, and many vendors are now launching versions for use on campus. This difficulty in bridging the two environments (distant and on-campus) violates our first guiding principle (that educational services should be provided in a seamless environment regardless of mode of delivery). To the extent possible, it is preferable to develop technology solutions that span on-campus and at a distance modes of delivery.
2. As services – rather than licensed product – pricing is largely based per student served. For the distance education course, institutions have adopted a variety of tuition and fee mechanisms to cover these costs (a typical cost is $20 per student). But these mechanisms have not yet been extended to the regular classroom course, and, in fact, scaling them campus-wide may prove prohibitively expensive and cumbersome. Cumbersome, because of the overhead involved in setting up this type of service for a regular classroom faculty member who may just want to begin experimenting with a course management system.
3. Customer service, reliability, and Internet access speeds have been problems. Some institutions have had to struggle with the vendors with student registration problems. In the past, the vendor networks have crashed, for as long as a few days. Finally, since the servers are on the commodity Internet, often many "hops" away from the campus, at times response time has been less than adequate.

Applicability to statewide implementation. The e-learning market is turbulent, as are most .com markets. While there are preferred vendors today, tomorrow's choice of technology may differ. Also, in Colorado, with 1,700 existing online courses, we have a significant legacy investment in a number of vendor's systems. Thus, a statewide commitment to a single ASP must be viewed in light of these concerns. The most prudent path to statewide implementation is to have master contracts for the more popular vendors so that the institutions can exercise their collective purchasing power.

5. License distance education software

What it is. Many campuses, while they may outsource to e-learning ASPs, also license course management software to run in-house. They license a product rather than subscribing to a service. In so doing, the institutions incur the necessary expenses to install, operate, and maintain these systems and integrate them with their own registration and financial systems.

Example. Typical vendors include WebCT and Blackboard. The community colleges use both; CSU uses WebCT; UCD and USC use Blackboard.

Arguments for. These systems are inexpensive relative to e-learning ASP services. Campus-wide licenses run from $5,000 to $50,000; on a per-student basis, the cost is well under the $20 for outsourced e-learning services. Further, the systems, running as they do on the institution's own servers, are under direct control. If students are on campus, the networking path to the servers is direct (the campus WAN). Content is securely under control of the originating institution.

Arguments against. These systems require significant capital and human resources to run (which is why the e-learning services are so attractive). Total cost of ownership exceeds the cost of the license, possibly by a considerable amount. The most expensive service element to reproduce in-house is that of the 7 by 24 help desk. Due to these constraints, the level of student service provided in-house may be less than with an outsourced solution.

Applicability to statewide implementation. Market turbulence and existing installed base both argue against adopting a single product statewide. However, as these products are and will be widely used by all institutions. Therefore, institutions should pool purchasing power through the award of master contracts.

6. License content

What it is. Many publishers are beginning to package and market online content just as they do textbooks. Gartner Group estimates that by 2005, fully 40 percent of courses will use a mixture of in-house developed content and purchased content. So, in this way, institutions will "privatize" the development of course content by licensing it from publishers.

Example. Content publishers include Pearson Education, McGraw Hill, International Thompson. Pearson is the largest vendor of online content now. They have acquired several of the mainstream textbook publishers (Houghton Mifflin, Prentice Hall), and therefore their authors, copyrights, and exiting content. They are well poised to begin converting this legacy content into online formats.

Arguments for. This will become a cost-effective and widespread practice. Most faculty specialize in teaching, not textbook writing. The same will apply to online content. The quickest route to course content will be to license it from publishers.

Arguments against. It is as hard to argue against this as it is to argue against the use of textbooks. But the caveats and accommodations necessary when using textbooks apply here as well. Curriculum responsibility rests with the institution. Textbooks must be selected that provide quality content. Holes in matching the textbook coverage to the curriculum coverage need to be filled with auxiliary material assembled by the faculty member. The costs of published material will need to be covered, possibly by students just as textbook are.

Applicability to statewide implementation. The possibility of aggregating purchasing power applies here as well as to the other contracting and licensing opportunities.

Policy Recommendations

1. Institutions should continue to support enterprise structures for continuing education, life-long learning markets for adult learners when the program and course content is substantially distinct and separate from programs offered on campus.

   The CIT should be considered a collaborator in strengthening continuing education distance education programs in the information technology fields.

2. A pilot program should be established to explore how the hybrid enterprise/state-funded model may be extended to multiple institutions under differing governing boards, on a voluntary basis, in certain applicable programs of study.

   The potential for privatization of management, development, delivery, and student service functions exemplified by this model is too great to leave unexplored. This is especially true given the high cost structure of distance education programs when offered within the more limited context of a single institution and program. It is recommended that a significant grant of funds be provided toward a pilot study of this approach that includes cooperation from multiple institutions from differing governing boards.

3. Institutions should be encouraged to form liaisons among themselves within Colorado to fill gaps in curricular offerings needed to address local student market needs.

   The REAP program should be applauded for embracing distance education as a means of augmenting local institutional curricular strengths. Since a distance education solution to paired institutional sharing makes the pairing available across all interested institutions, great leverage of resources is accomplished in this way. When necessary, institutions should be encouraged to contract with out-of-state and/or commercial, for-profit institutions of higher education to obtain program offerings to meet local needs when (a) they cannot do so within their own resources, and (b) such offerings are not readily available from other State institutions.

4. The collective body of State institutions of higher education should form a buying cooperative and secure permissive master State awards for (a) e-learning ASP services, (b) distance education software licenses, and (c) licensed content, where the procurement awards include specific tiered pricing structures rewarding higher volume with price discounts.

To the extent that a single vendor establishes a dominant position in the marketplace and this, in turn, is reflected in their having a dominant position as a State vendor, then these pricing structures will provide an incentive for institutions to adopt a common platform.

Authorship

This chapter was prepared by the CCHE/CIO and provided to the full taskforce for comment. Any comments received were incorporated.

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